

• Denotes the repeating stereochemical triad

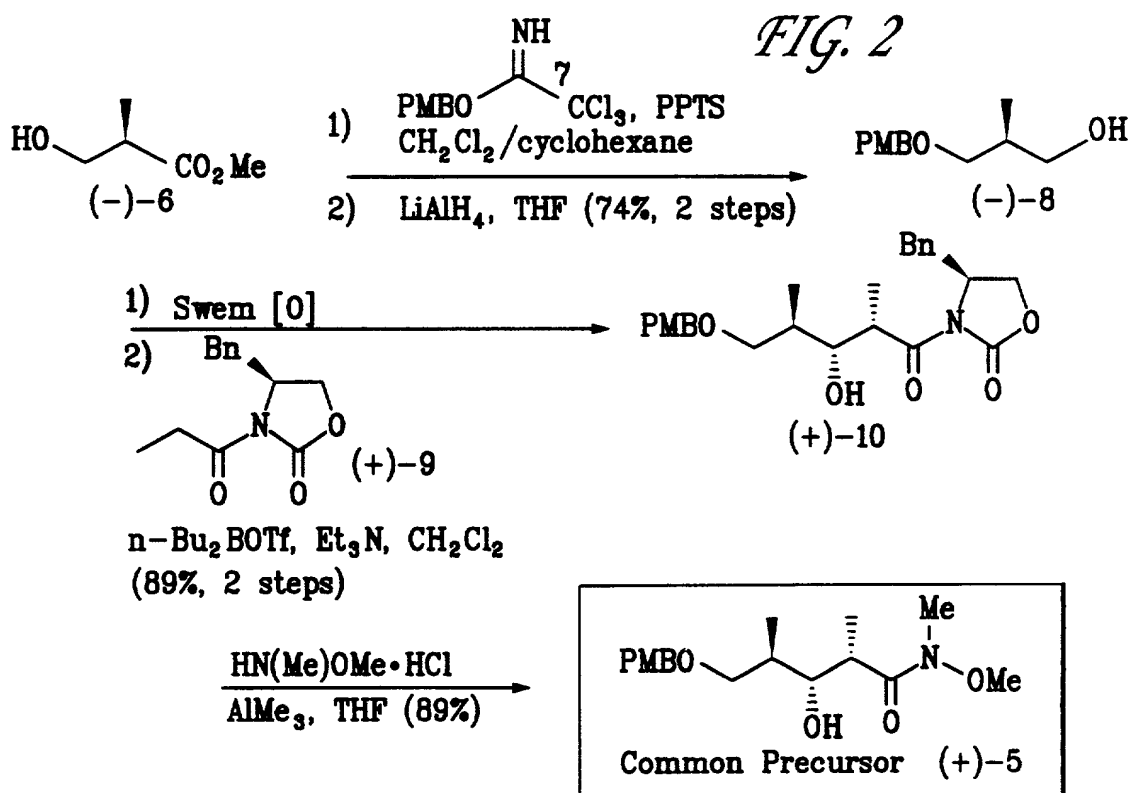


FIG. 3

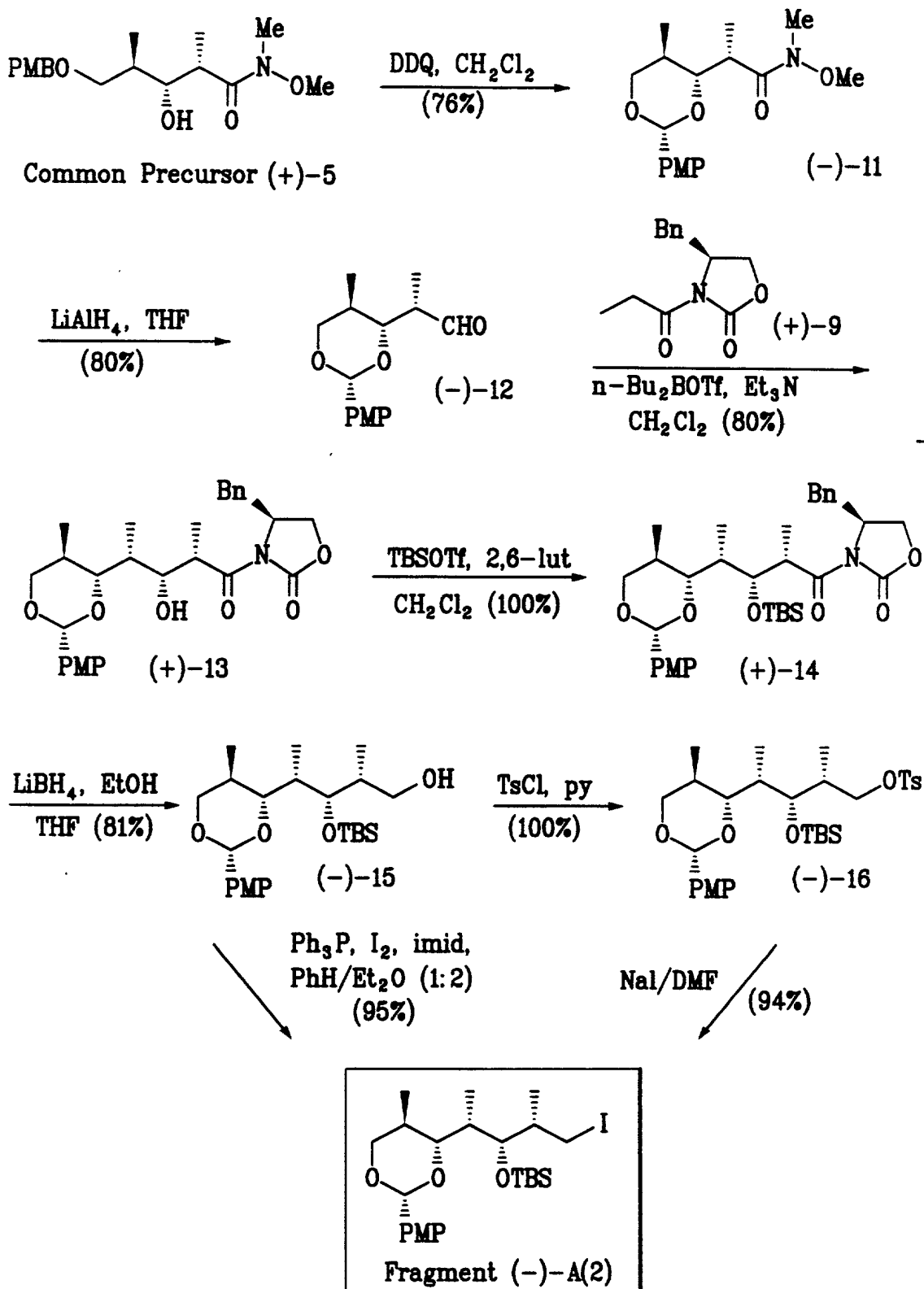


FIG. 5

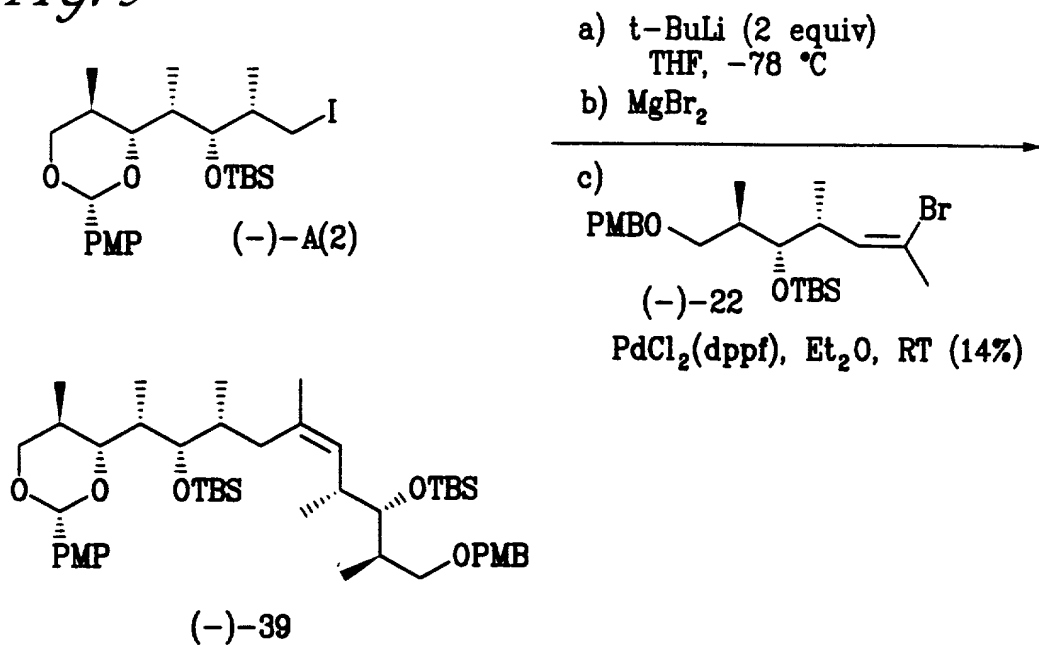


FIG. 6

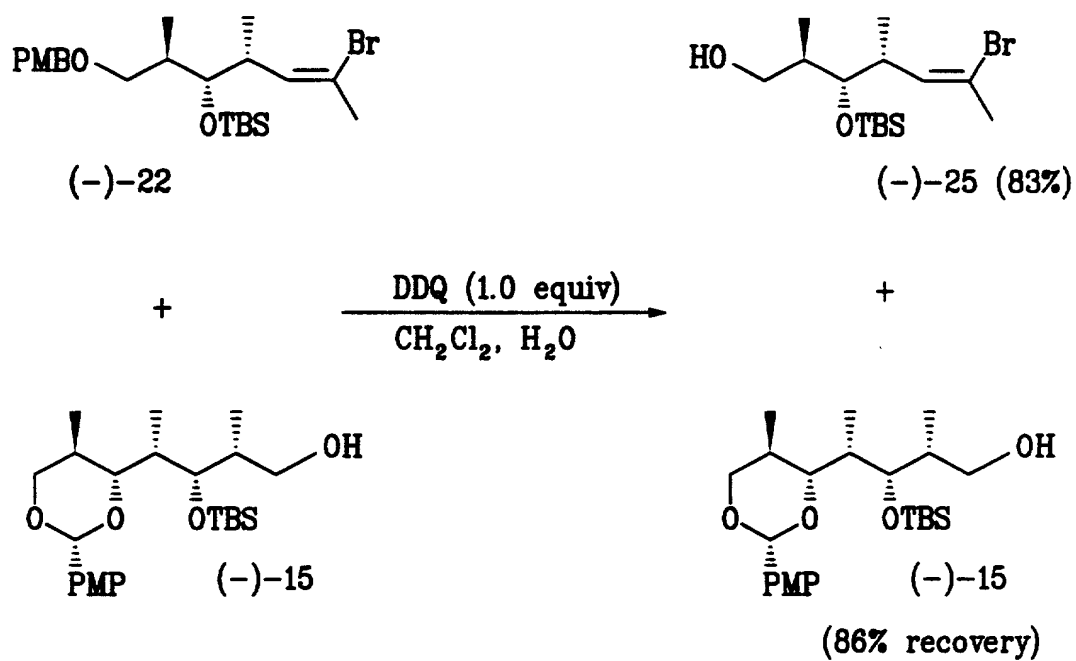
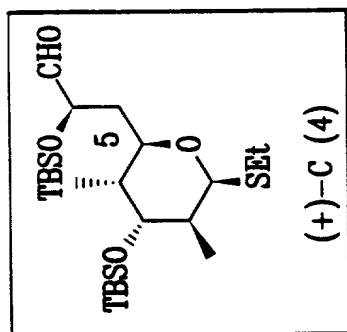
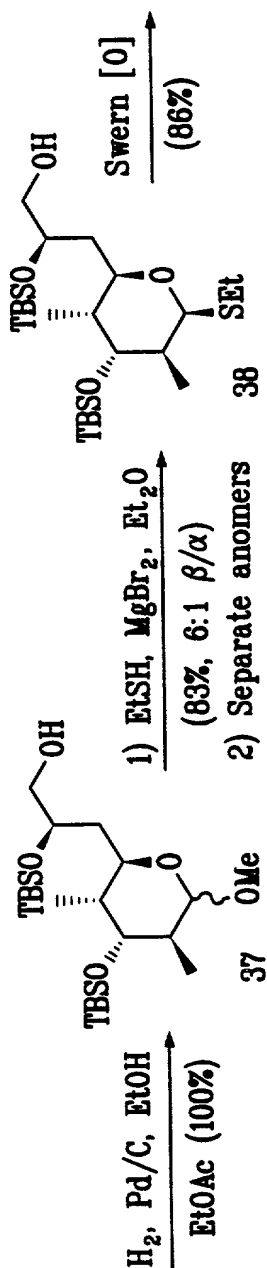
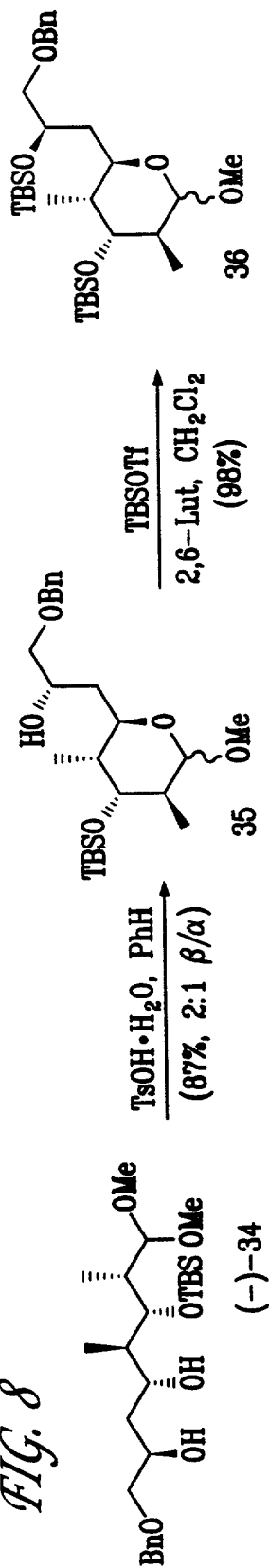


FIG. 8



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FIG. 9

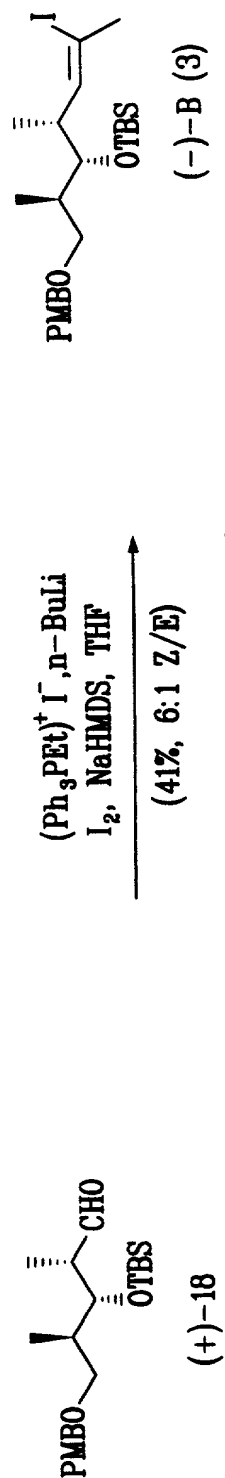


FIG. 10

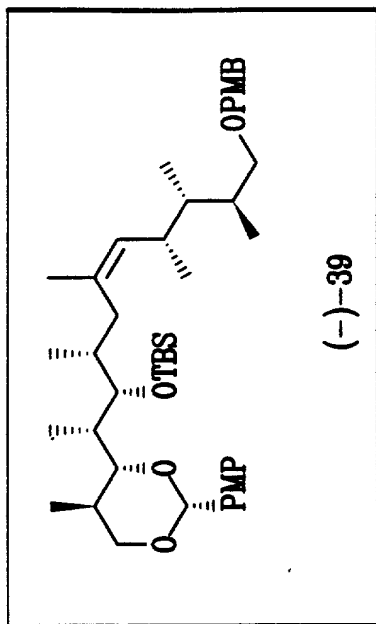
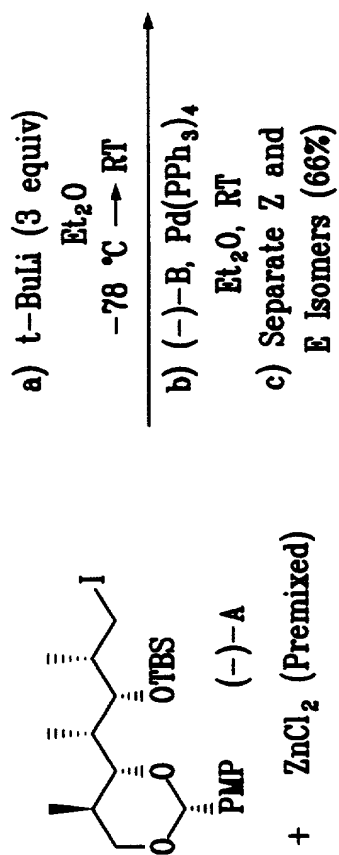


FIG. 11

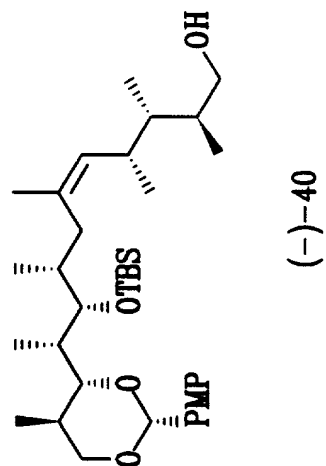
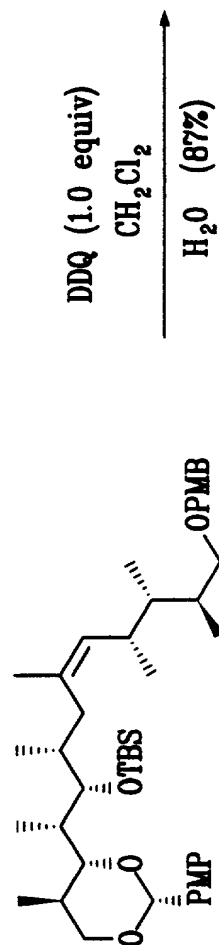
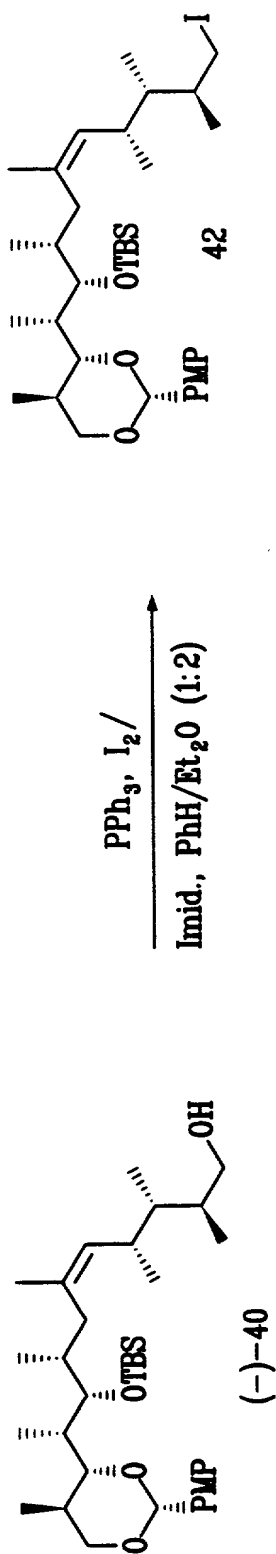
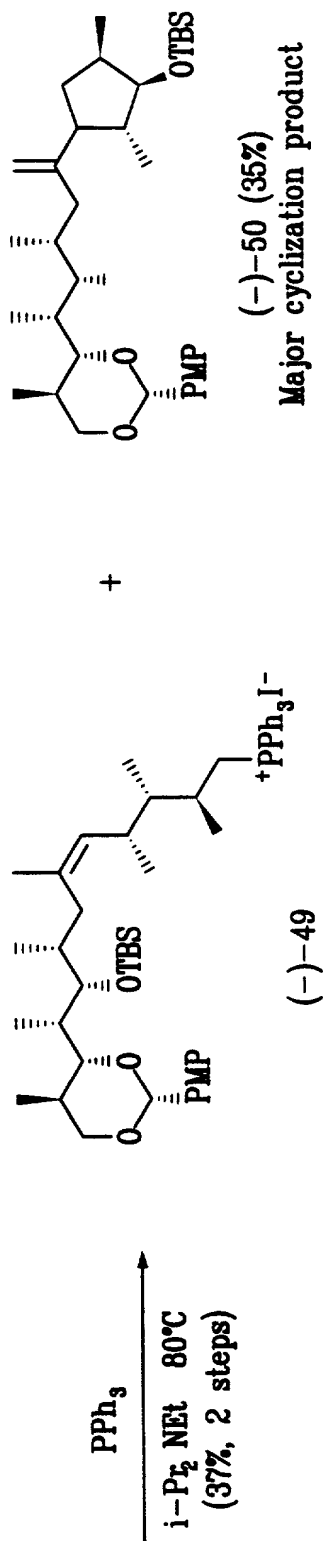


FIG. 12



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(-)-54 $\xrightarrow{\text{NaHMDS, THF}}$ (-)-49 $\xrightarrow{\text{DIBAL, CH}_2\text{Cl}_2}$ (-)-54 (88%) $\xrightarrow{\text{SO}_3 \cdot \text{py, Et}_3\text{N, DMSO, CH}_2\text{Cl}_2}$ (-)-56 (96%)

FIG. 15

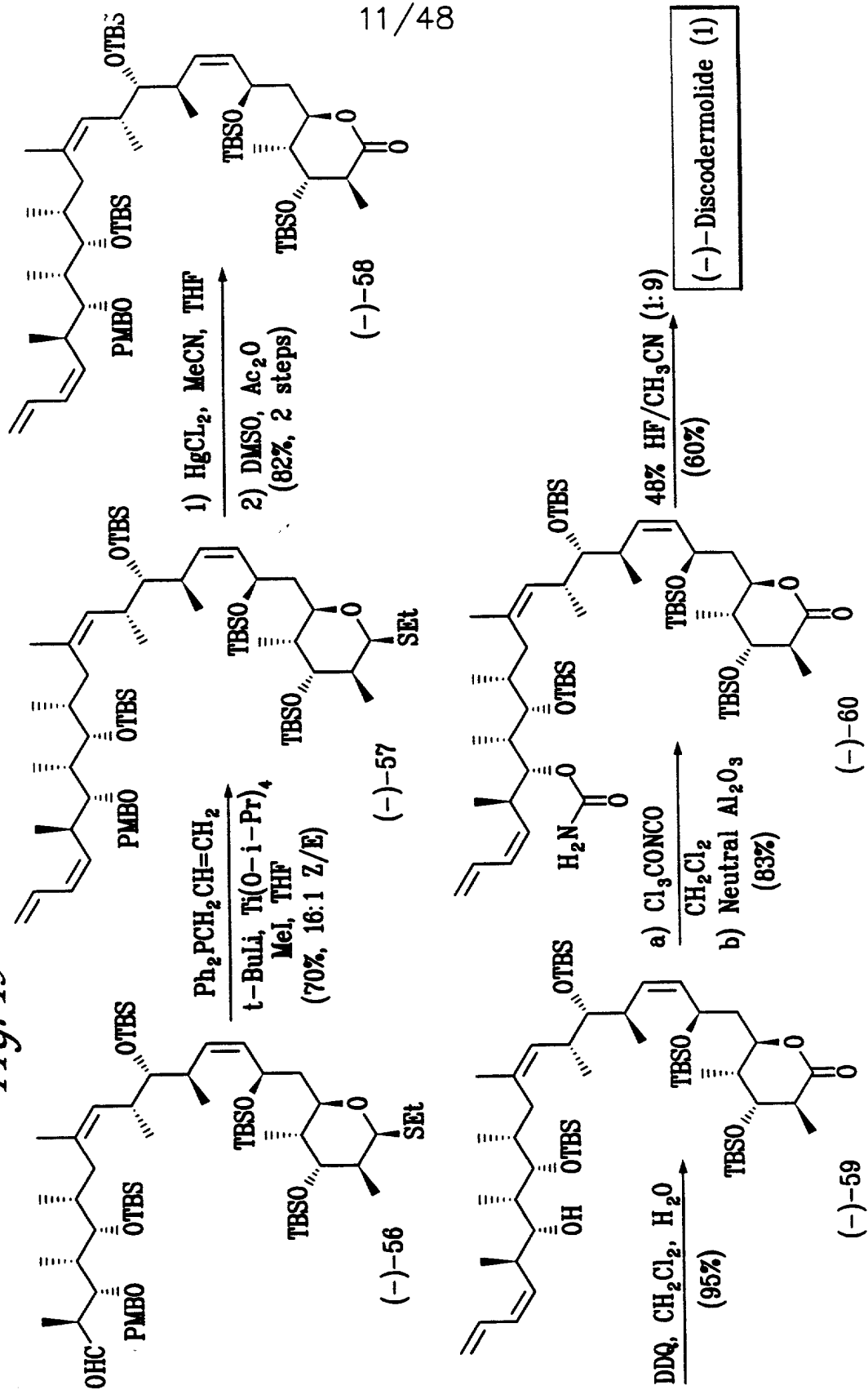


FIG. 16

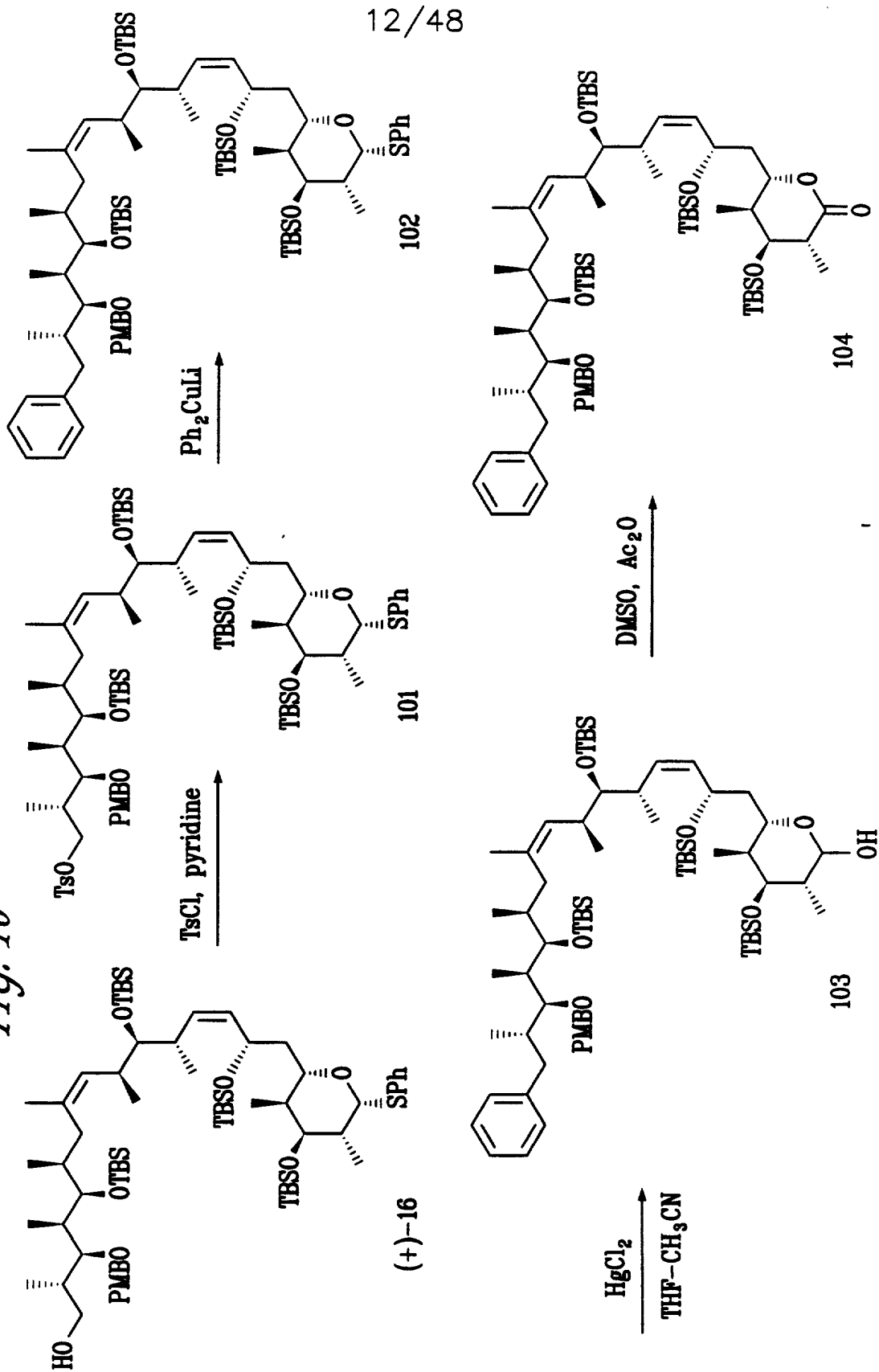


FIG. 17

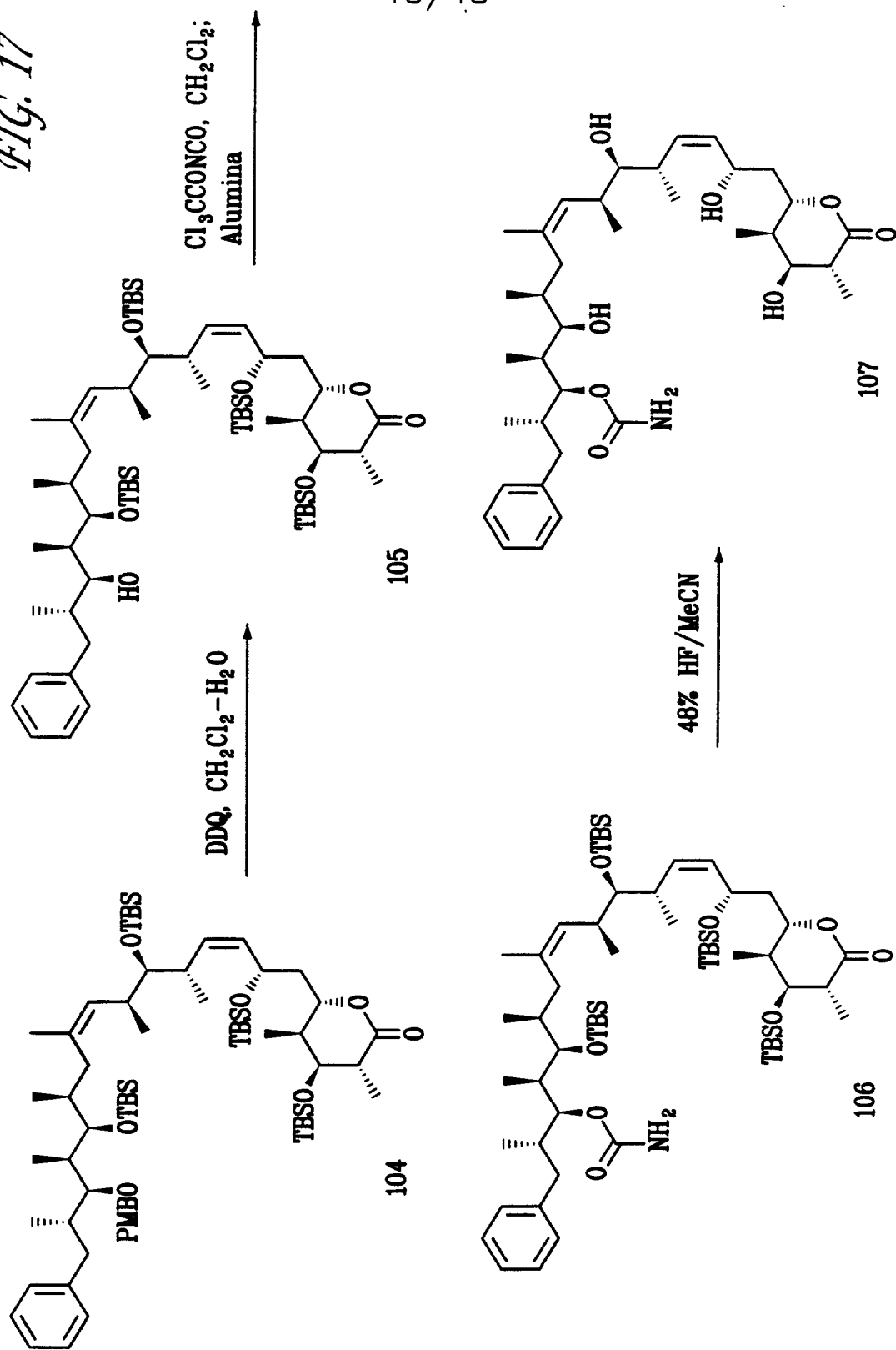
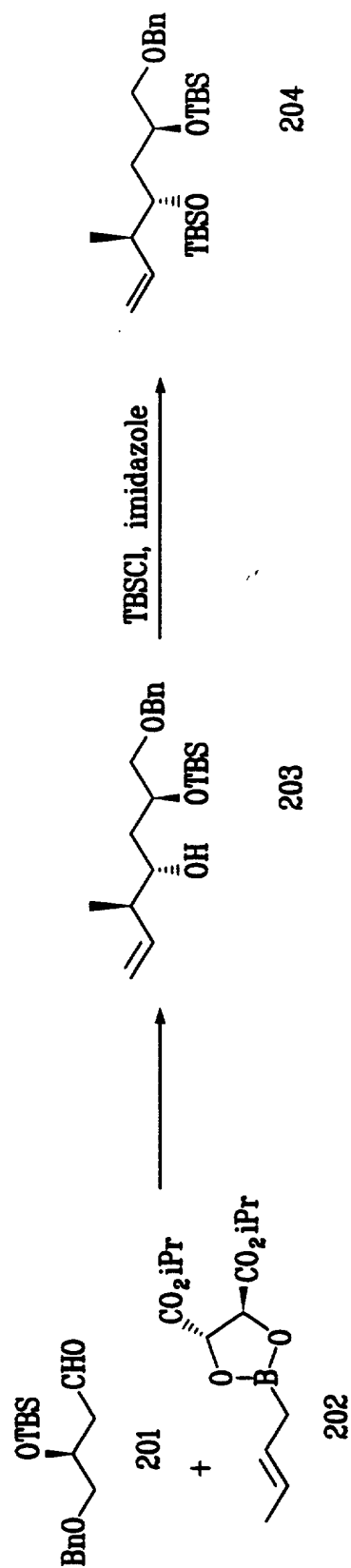
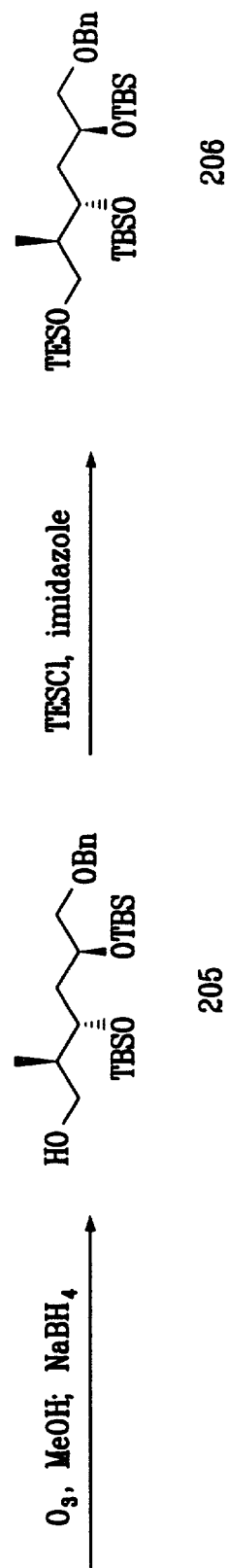


FIG. 18



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205

206

FIG. 20

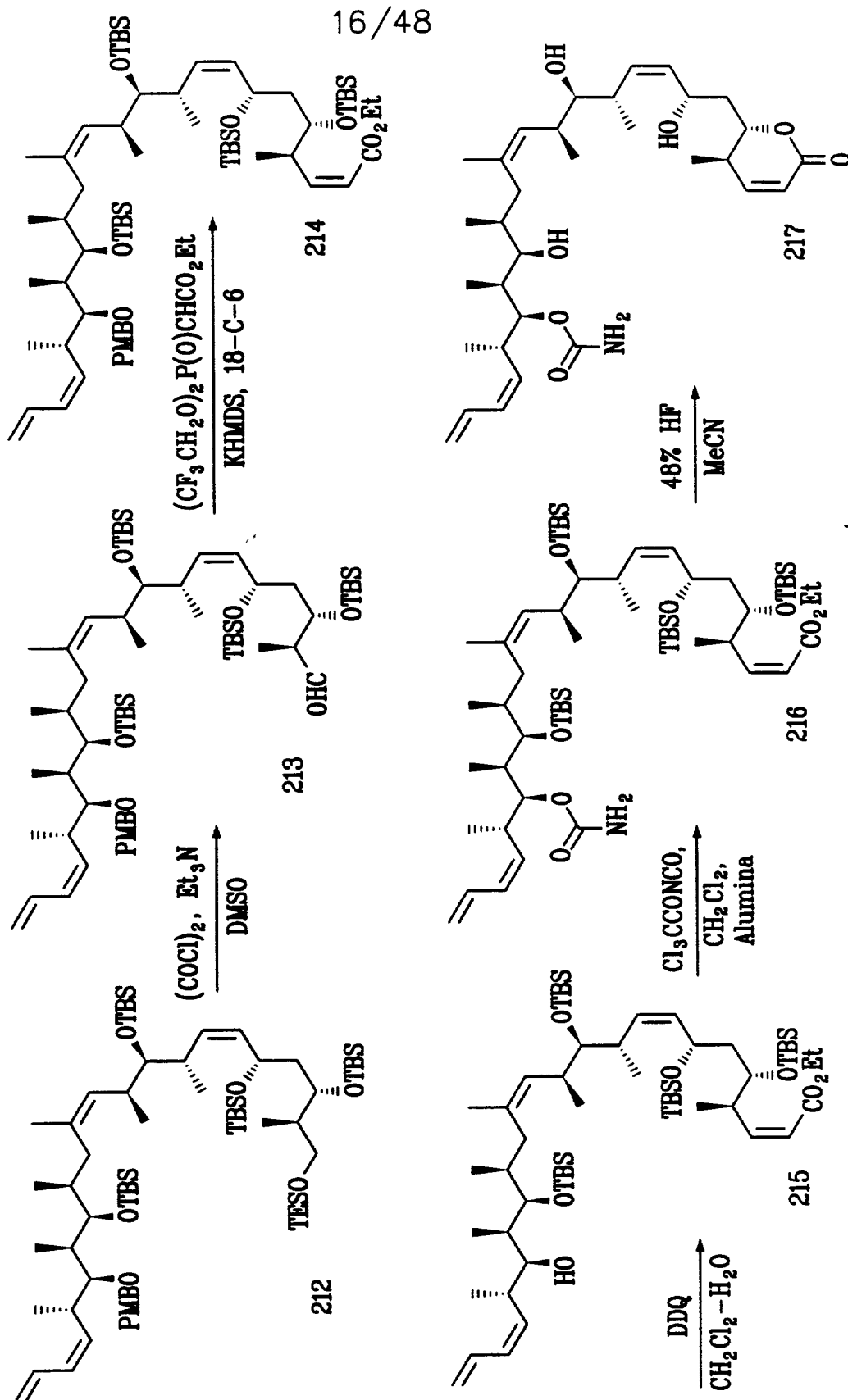


FIG. 21

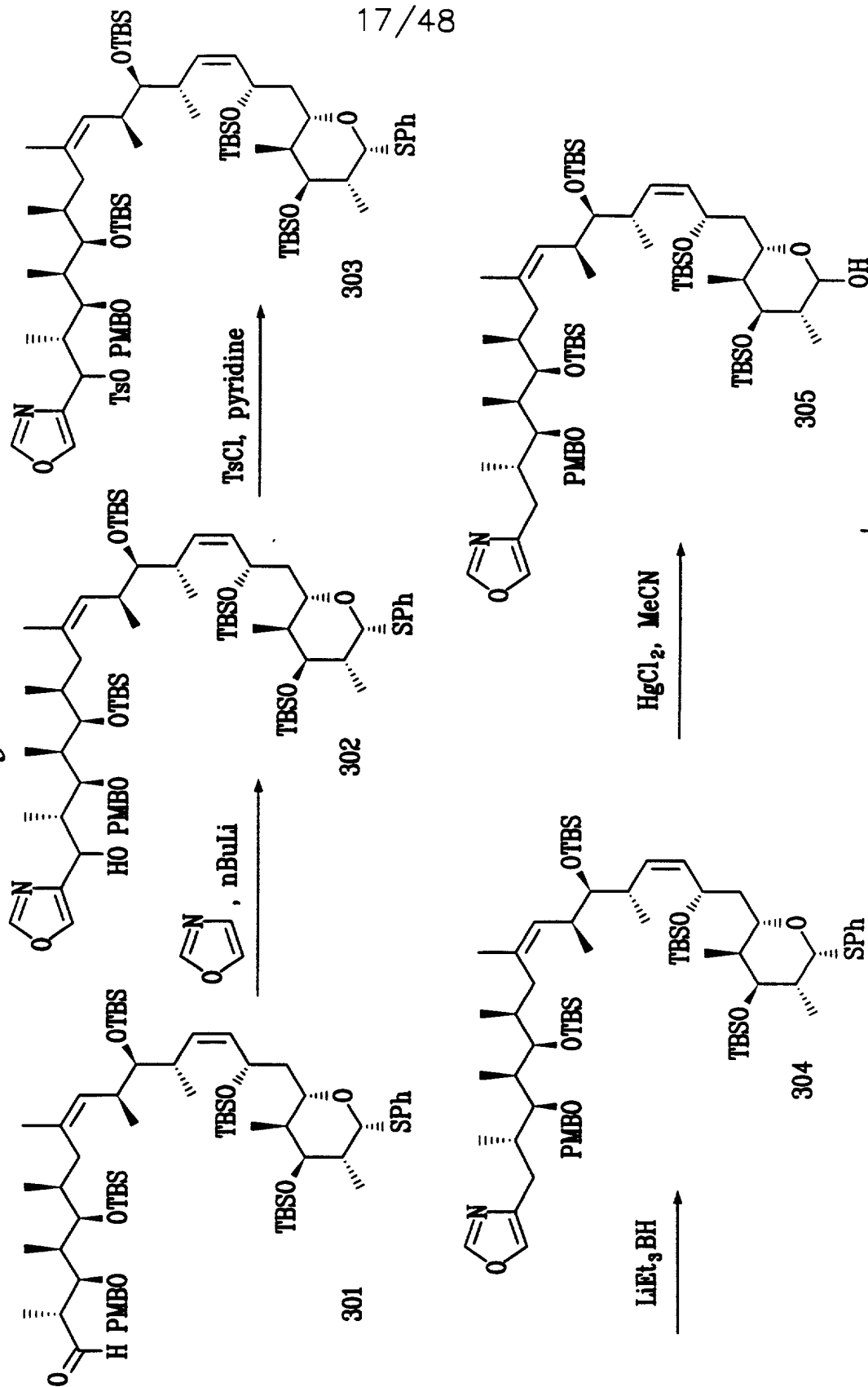


FIG. 22

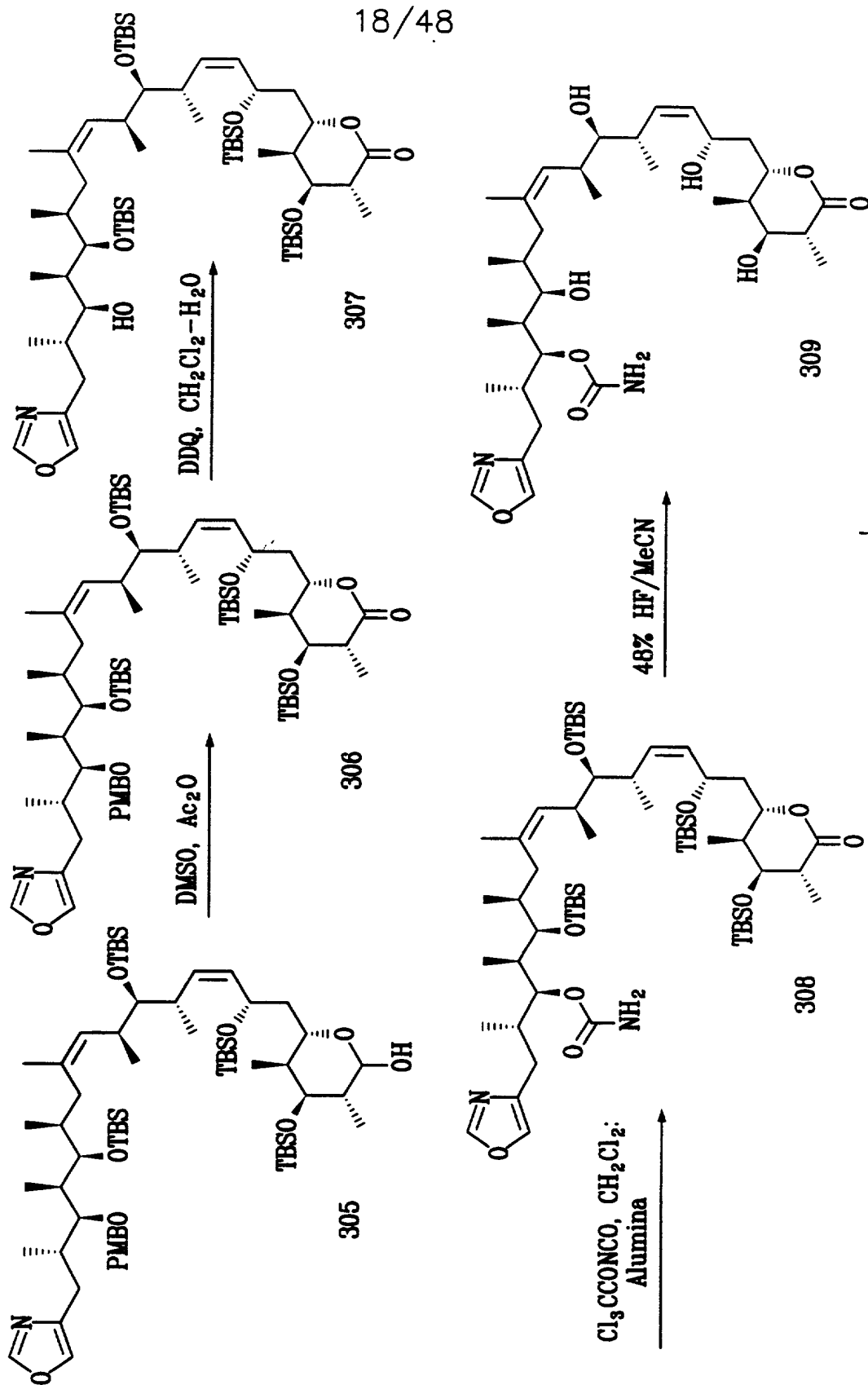
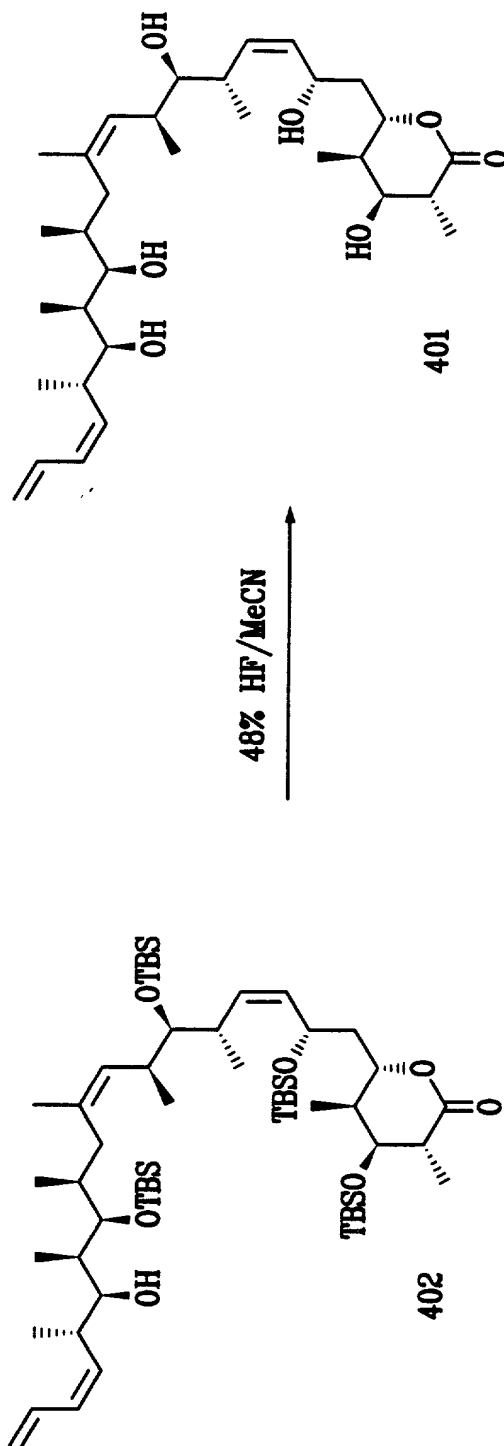
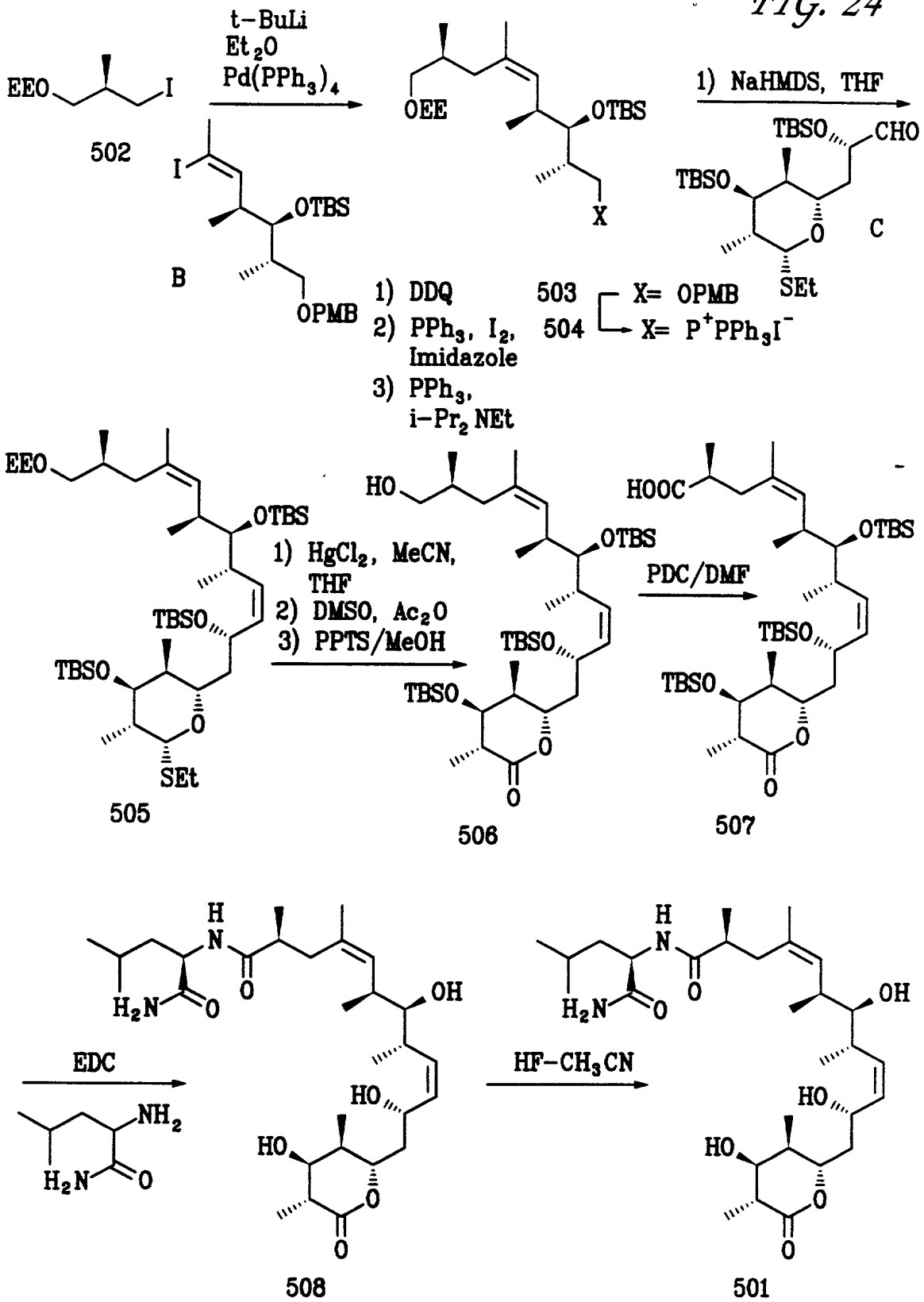
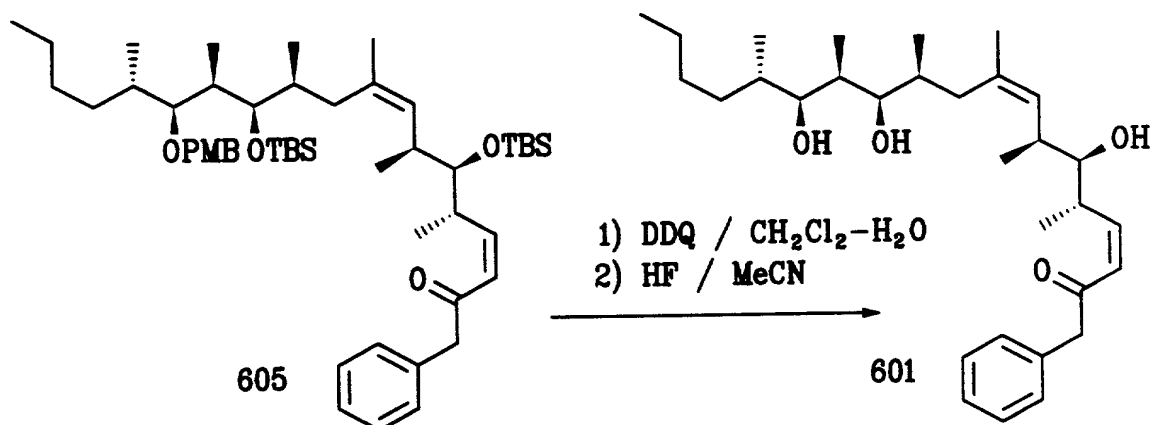
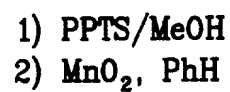
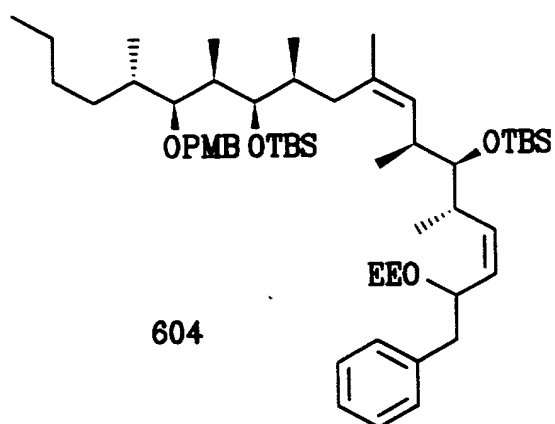
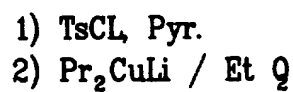
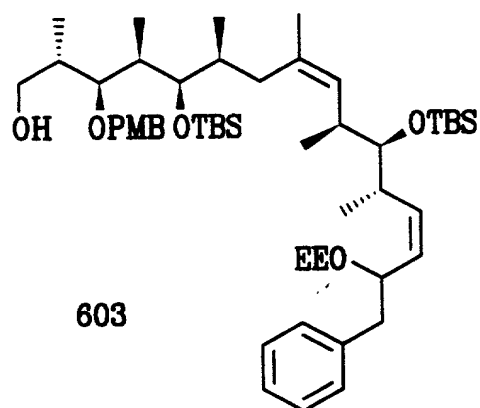
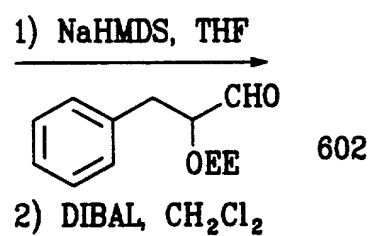
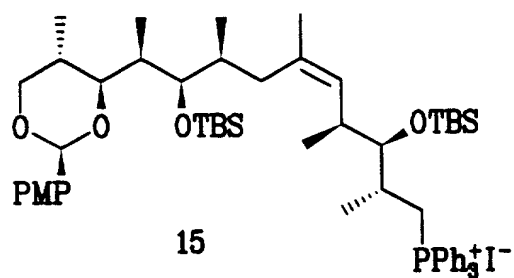


FIG. 23







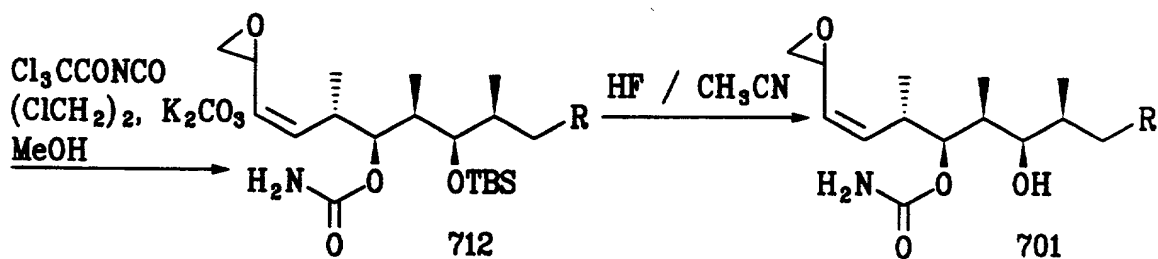
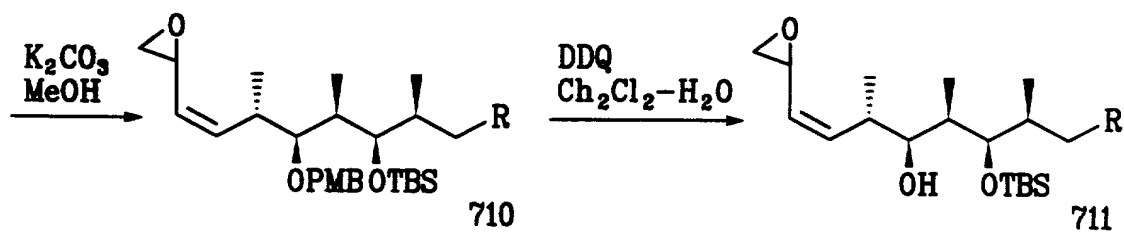
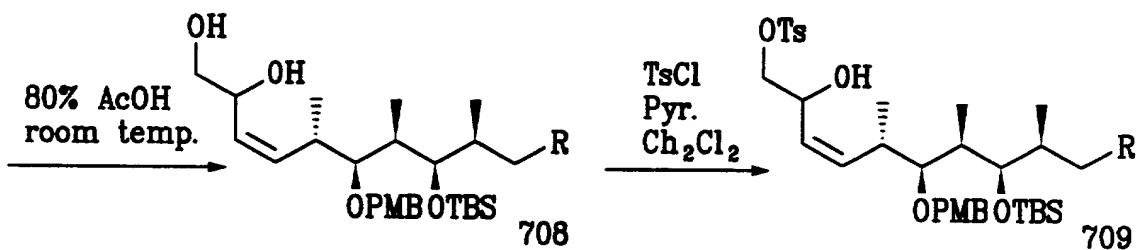
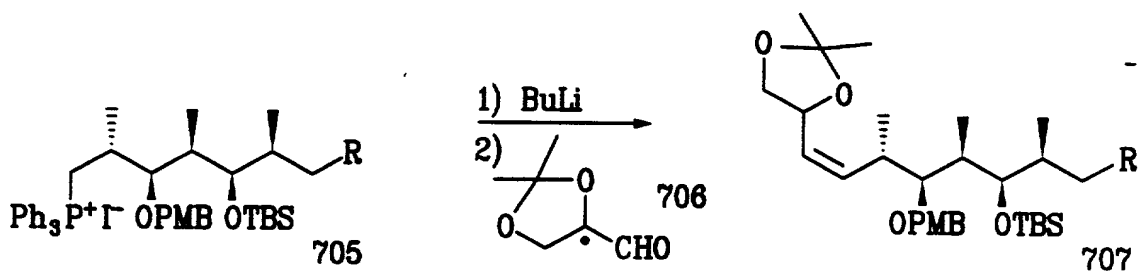
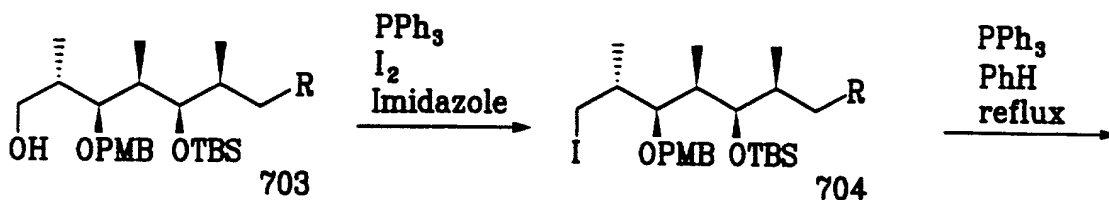
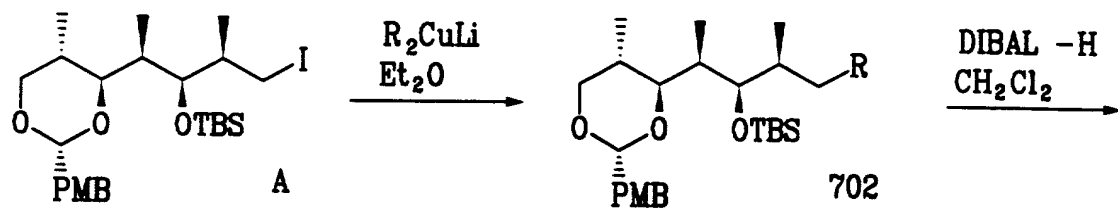
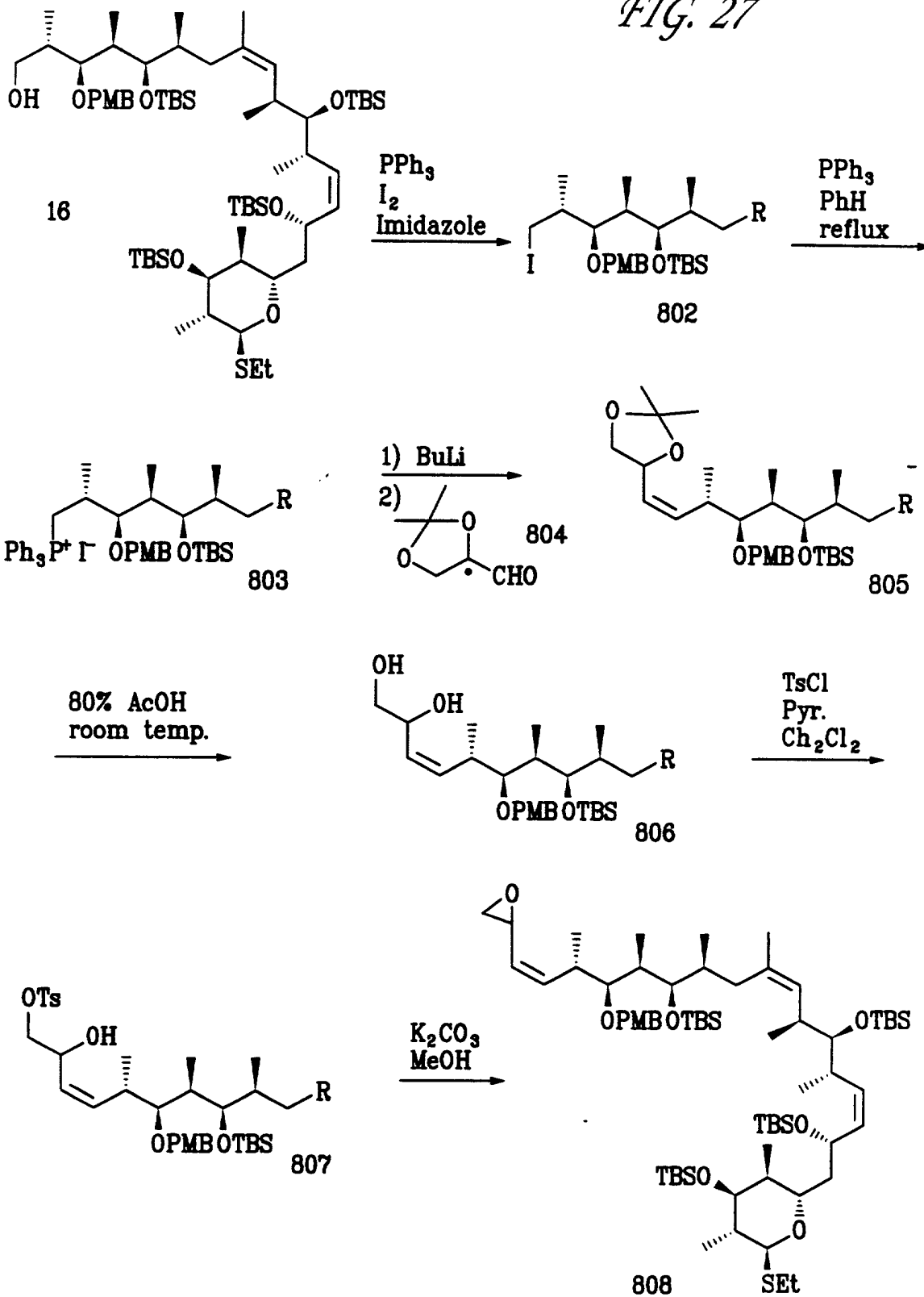
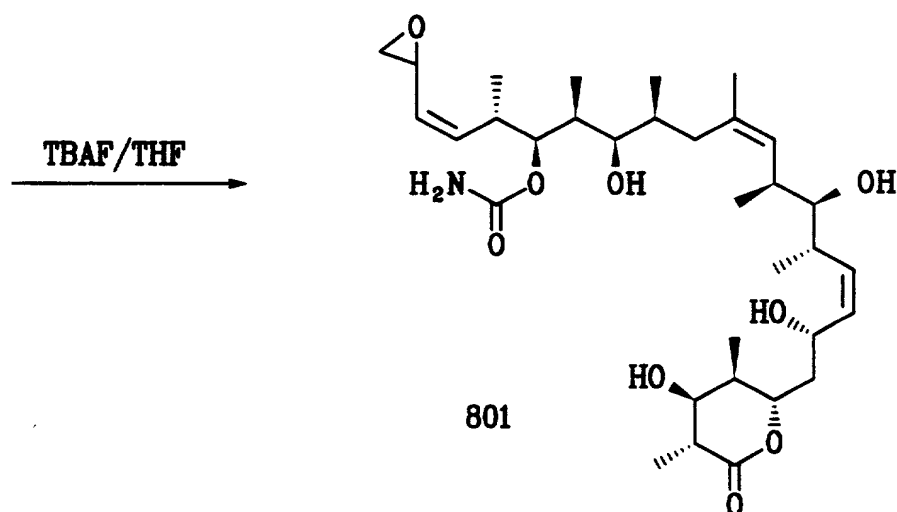
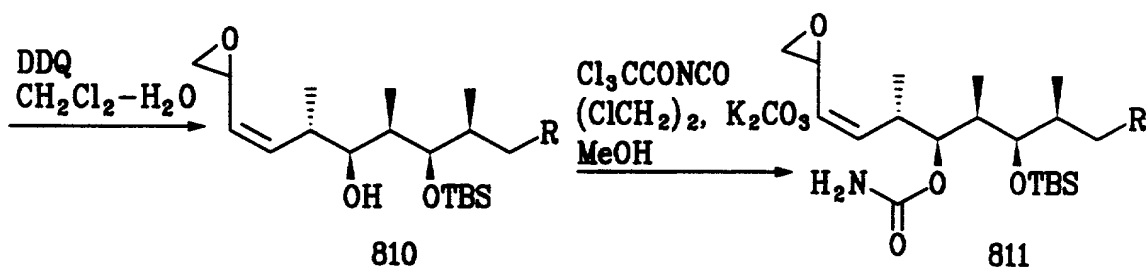
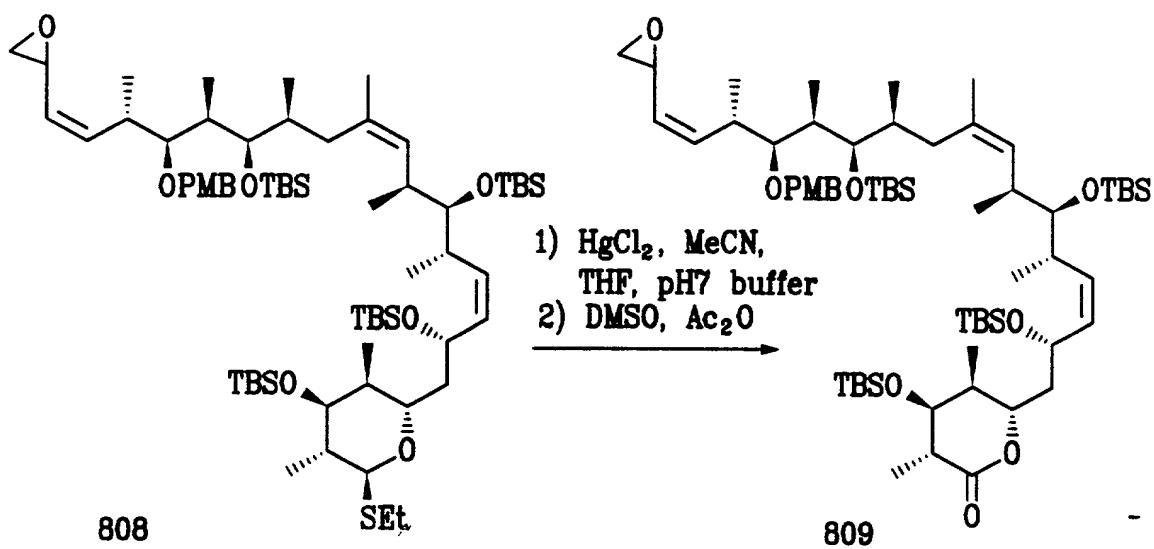


FIG. 27





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FIG. 29

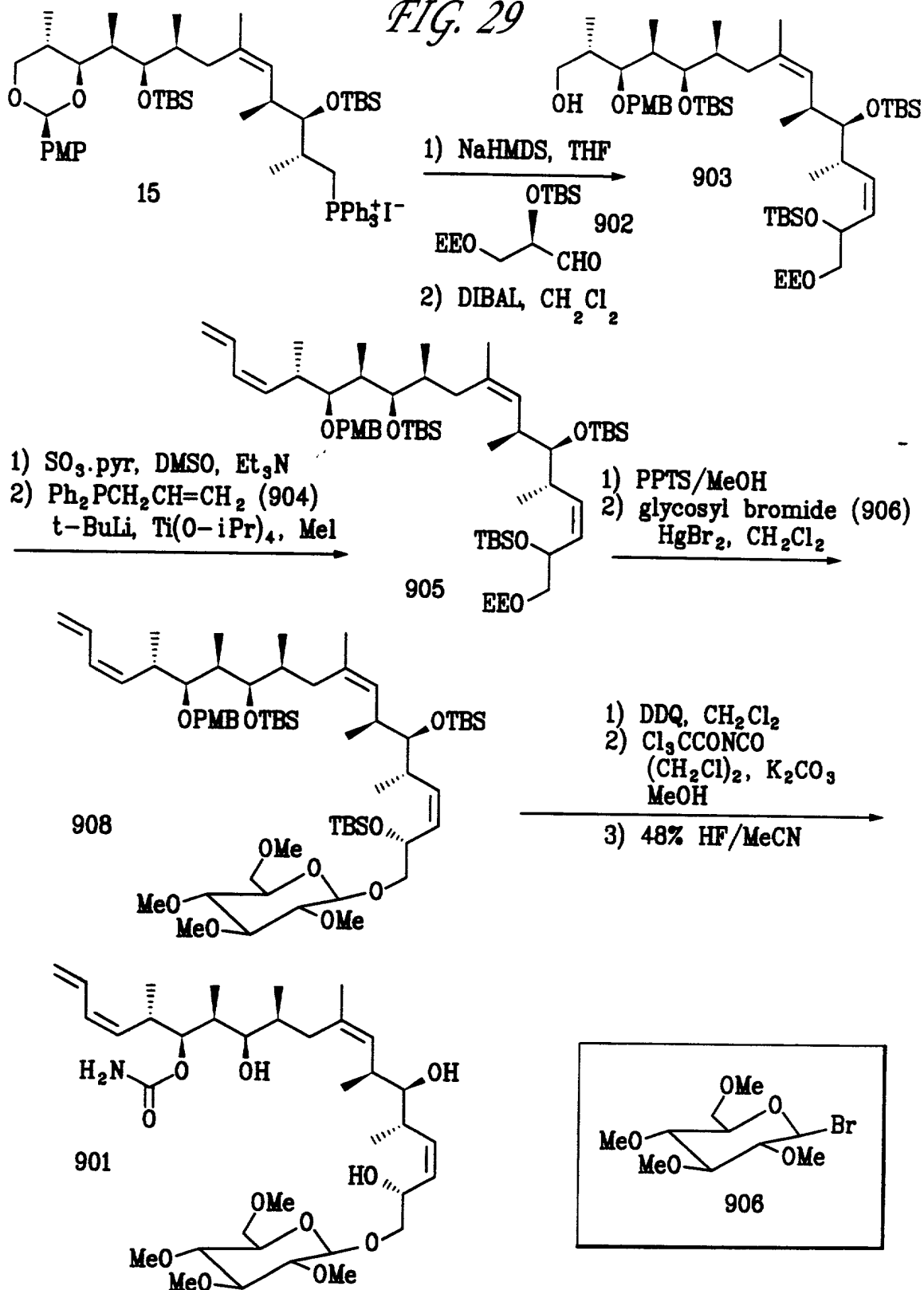


FIG. 30

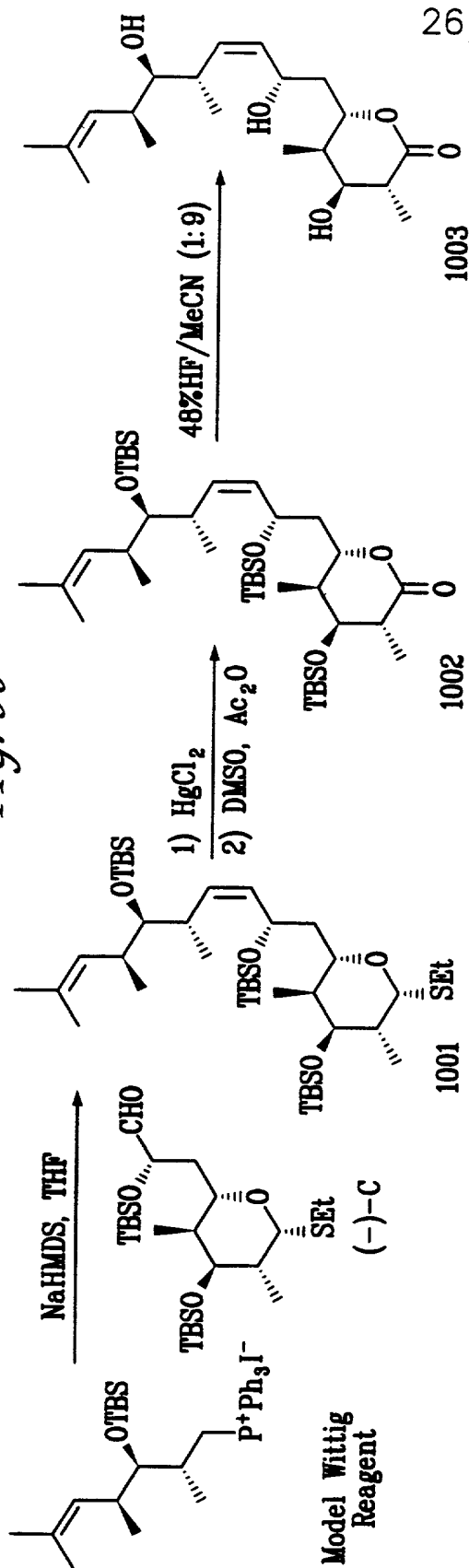


FIG. 31

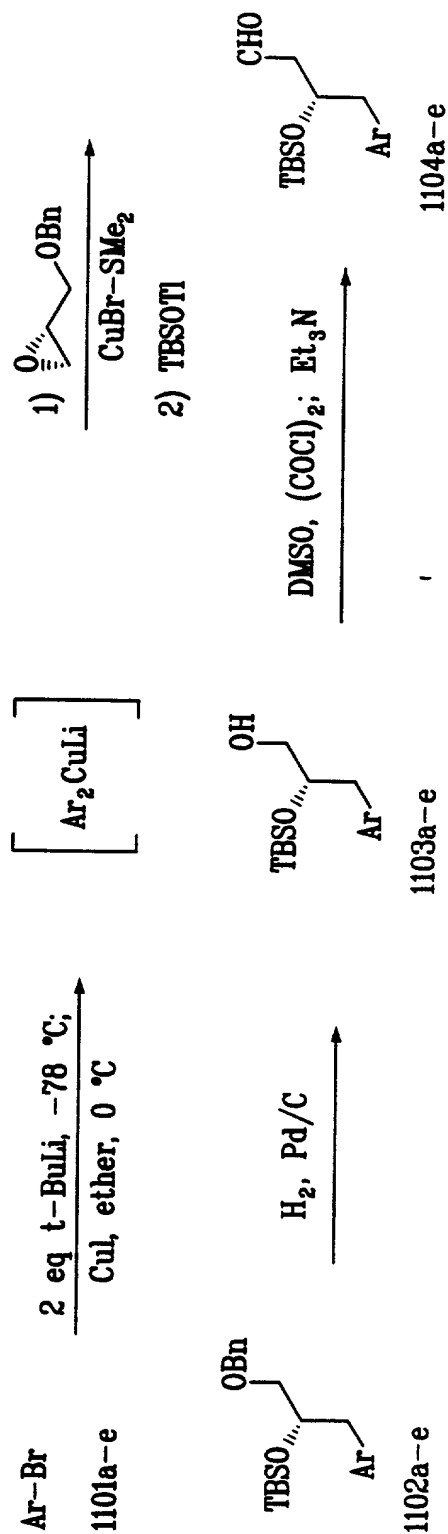


FIG. 32

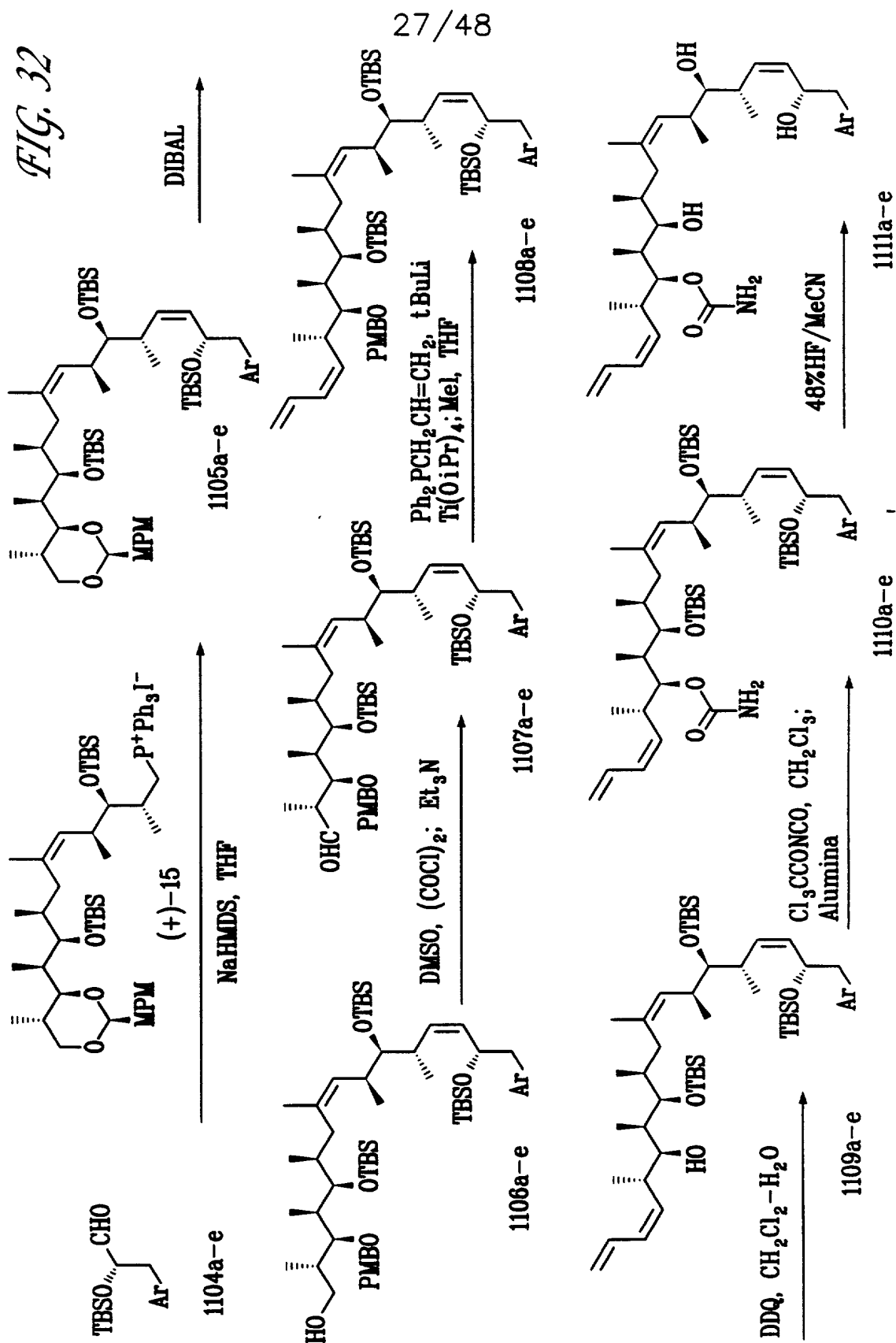
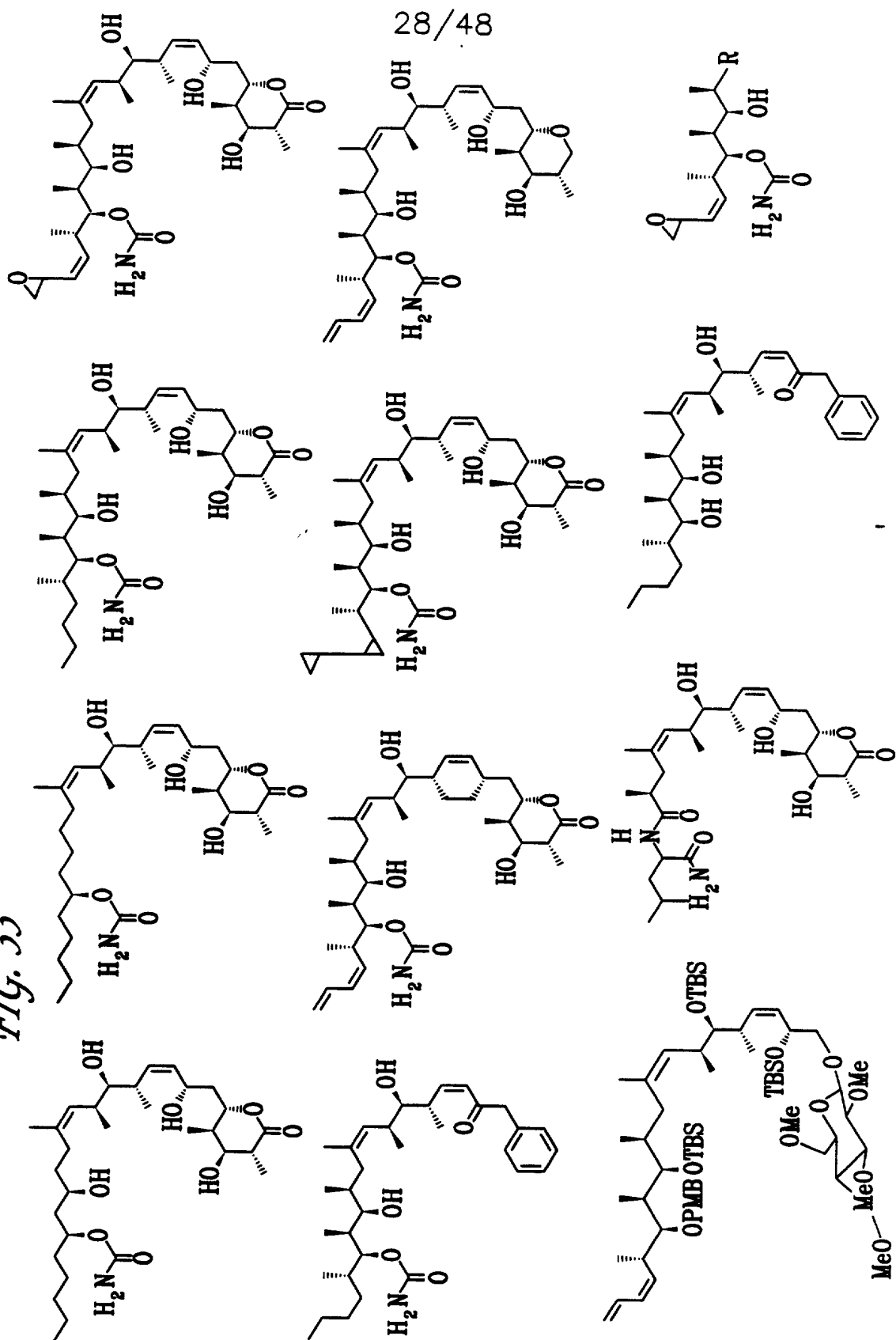


FIG. 33



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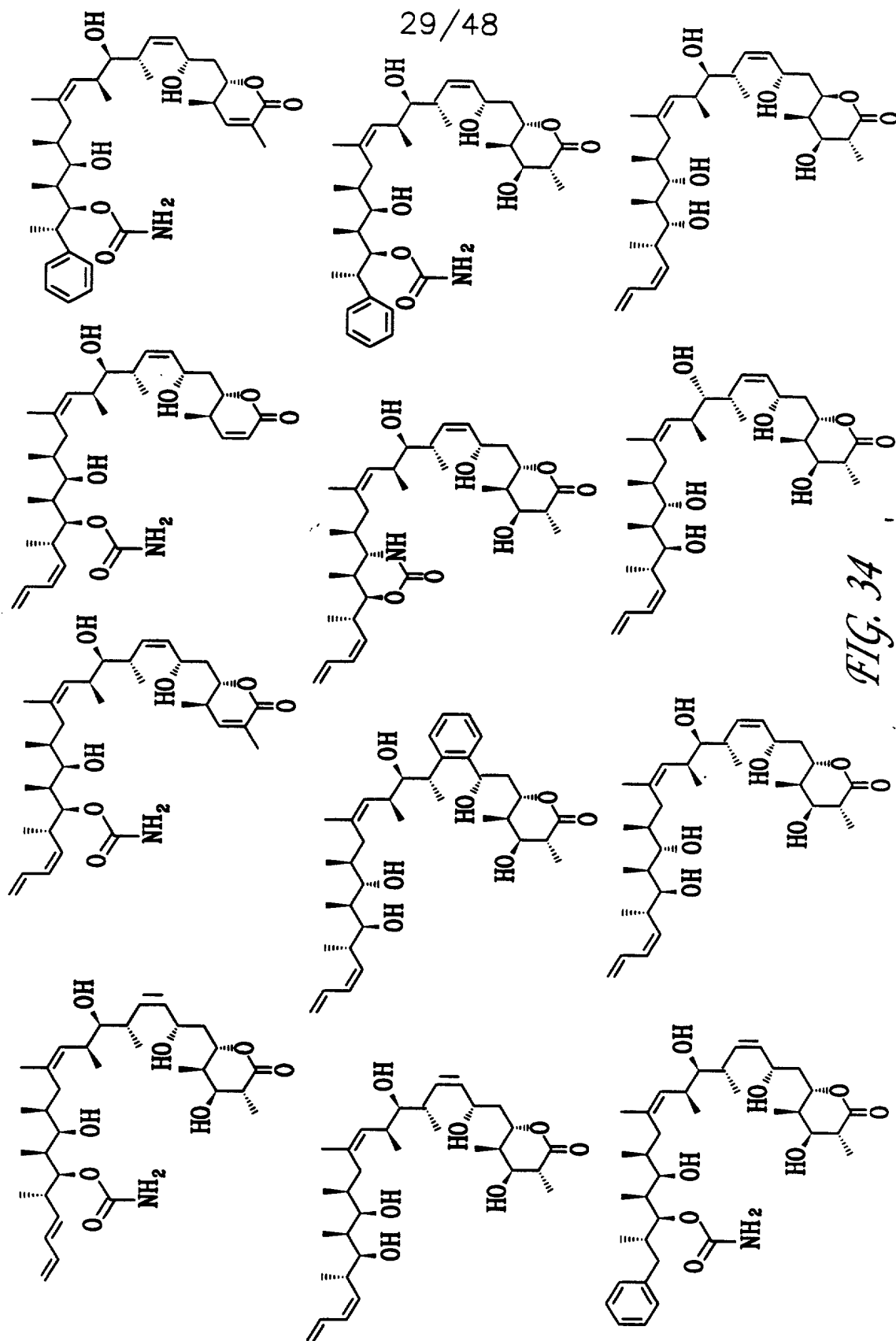


FIG. 34

FIG. 35

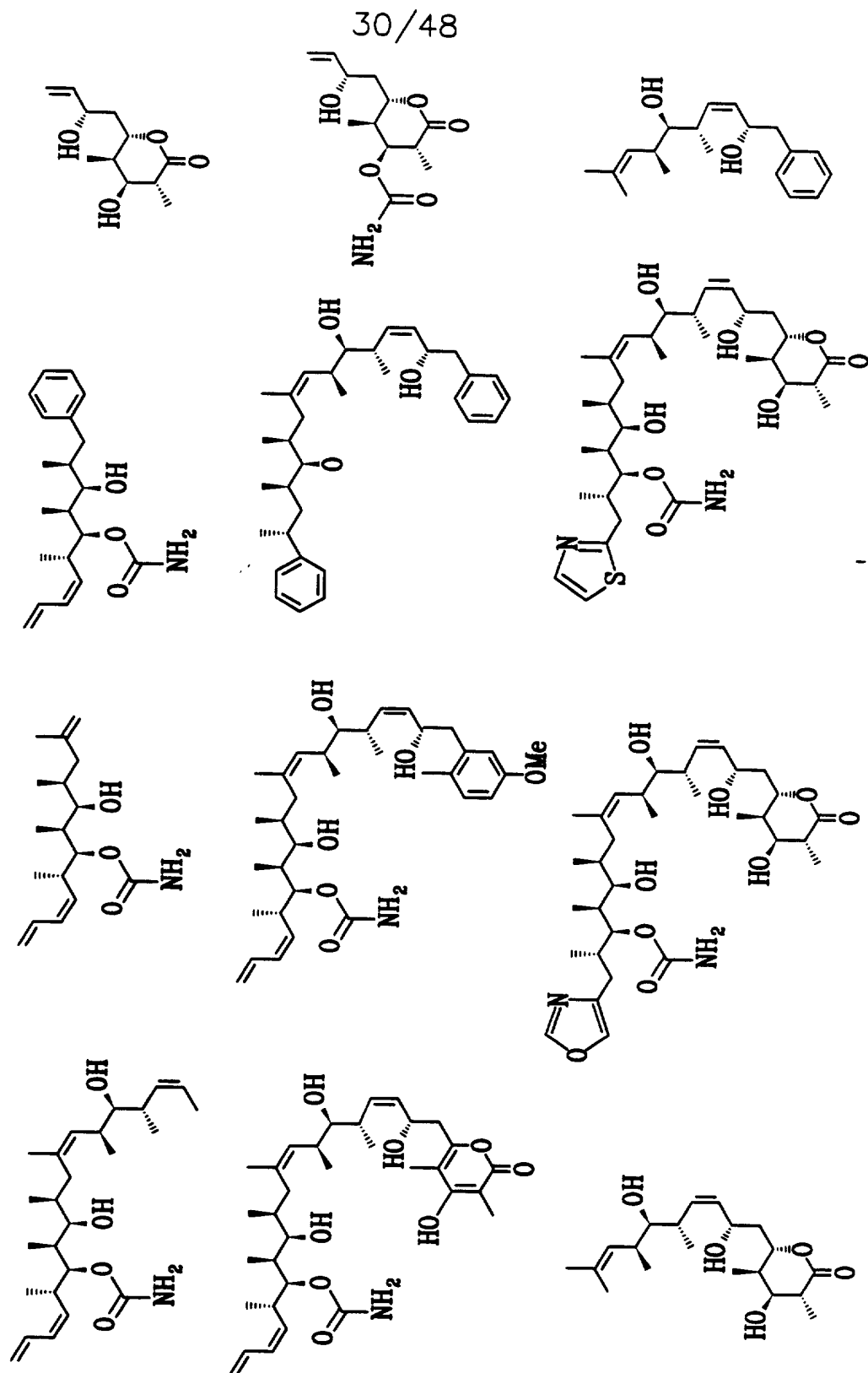


FIG. 36

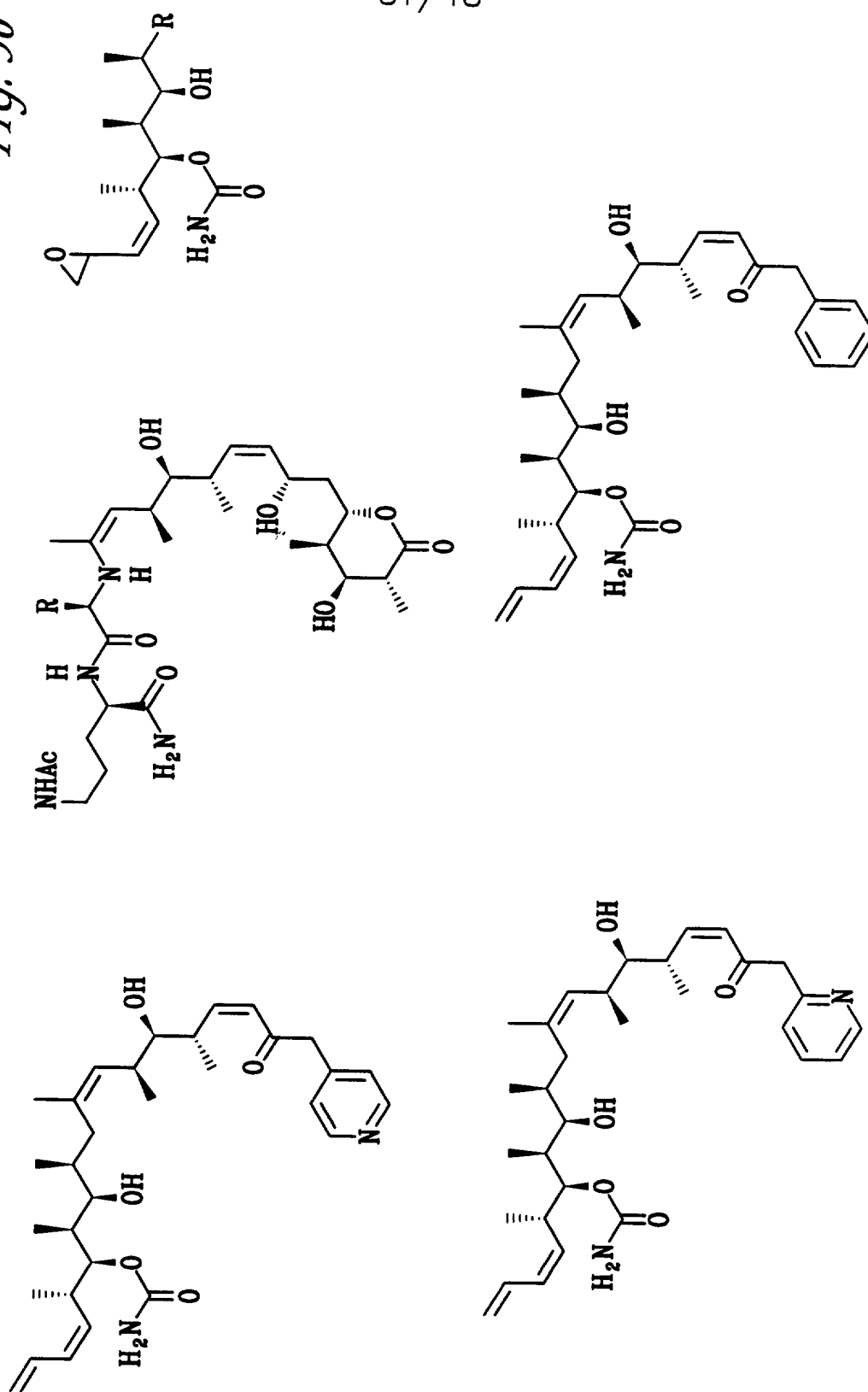
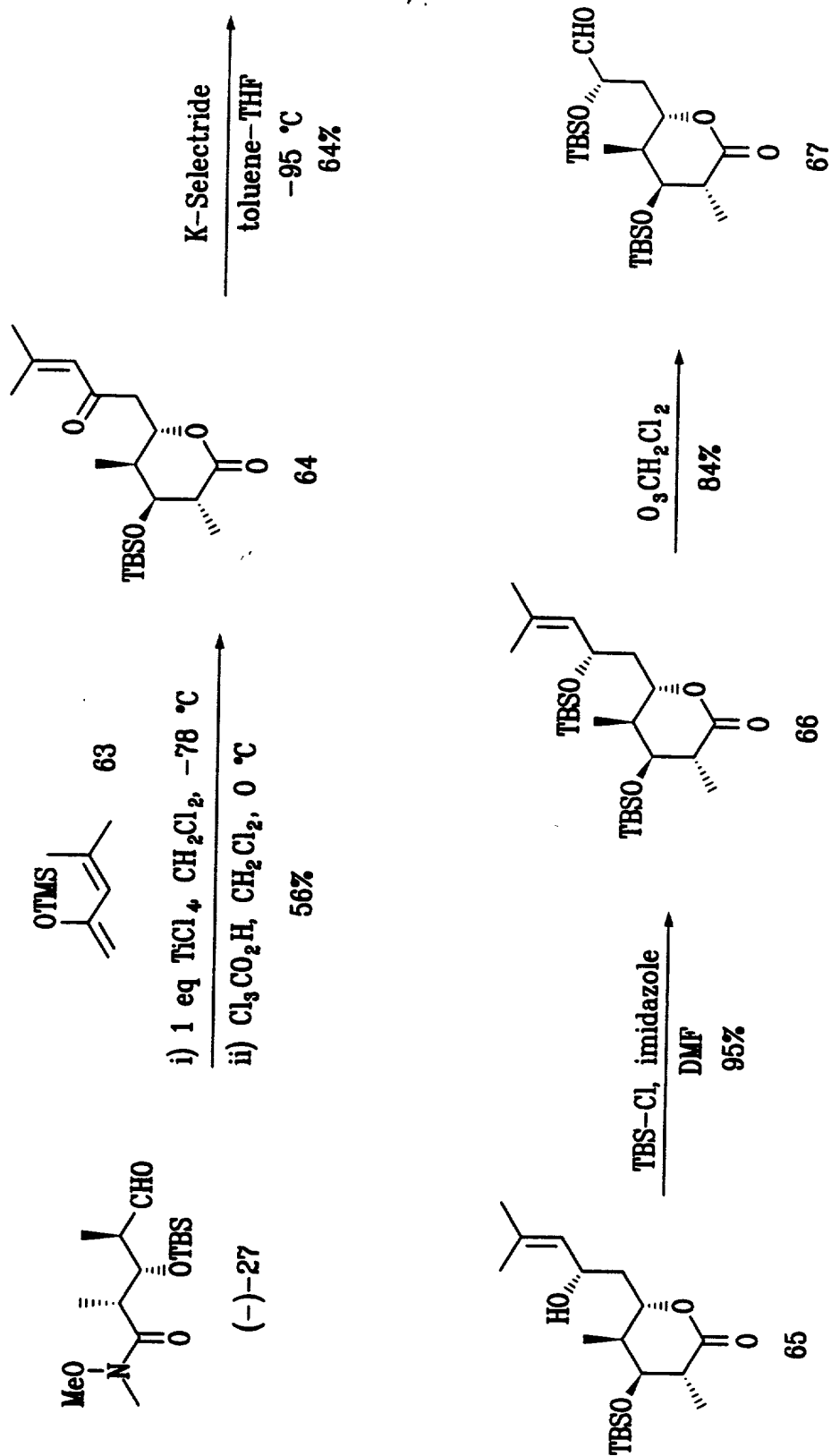
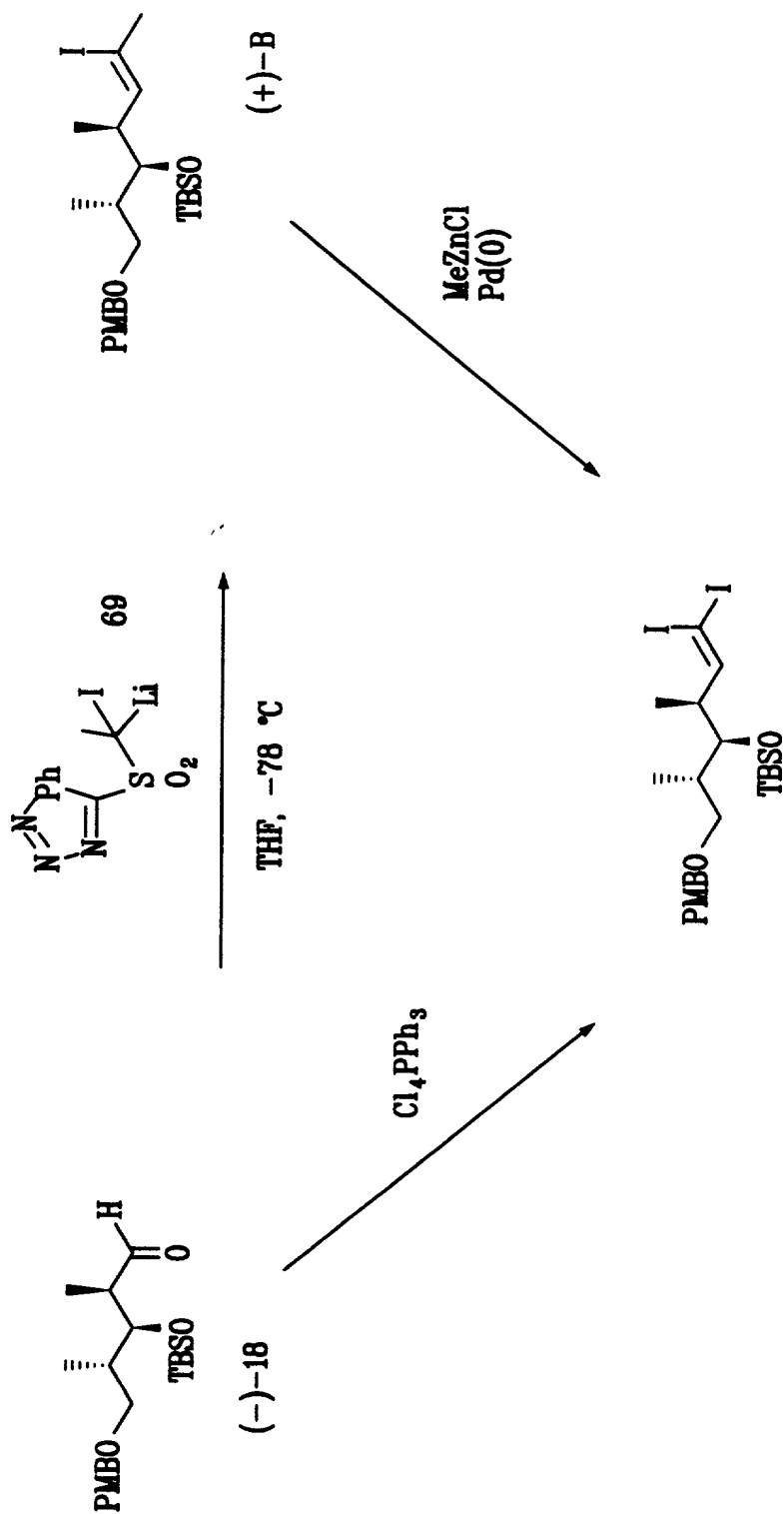


FIG. 38



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FIG. 39



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FIG. 40

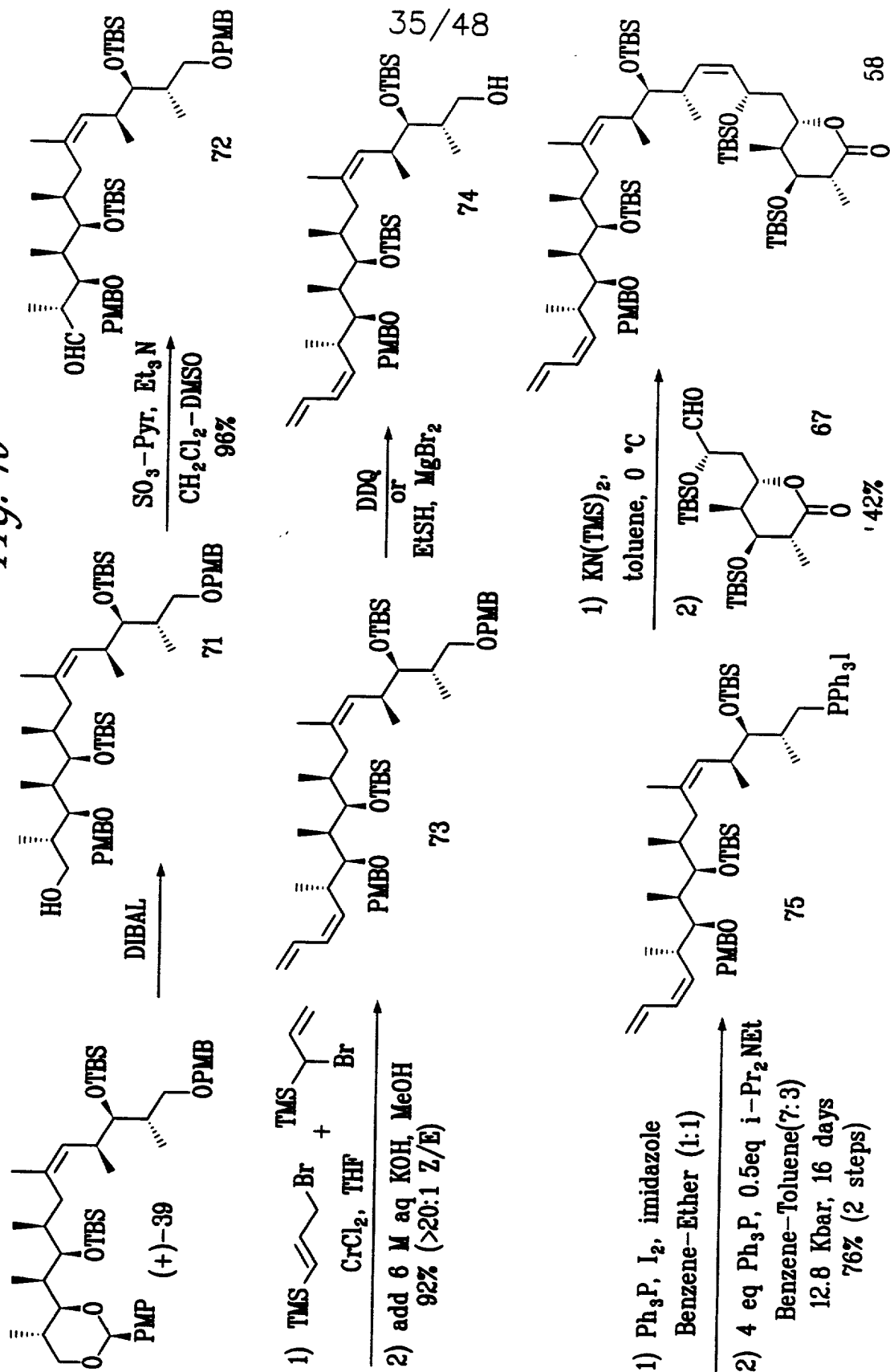


FIG. 41

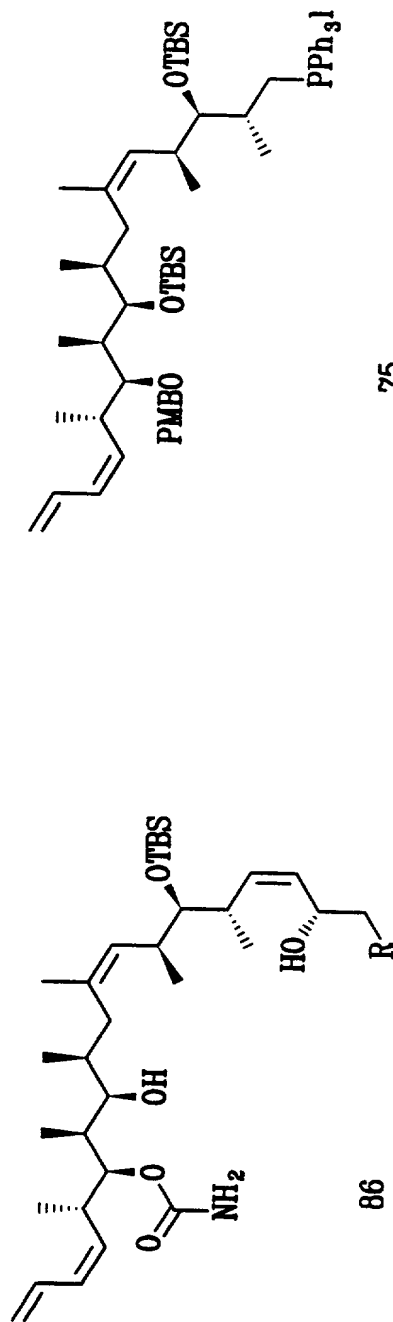
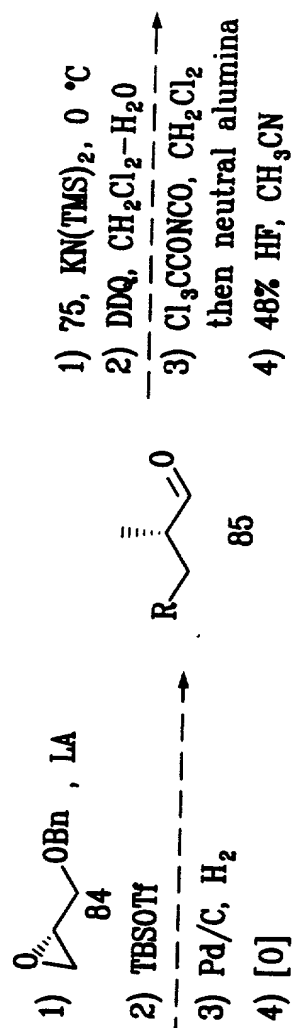
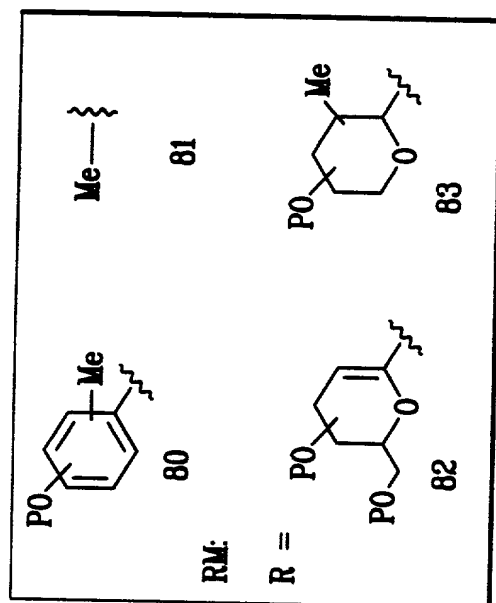
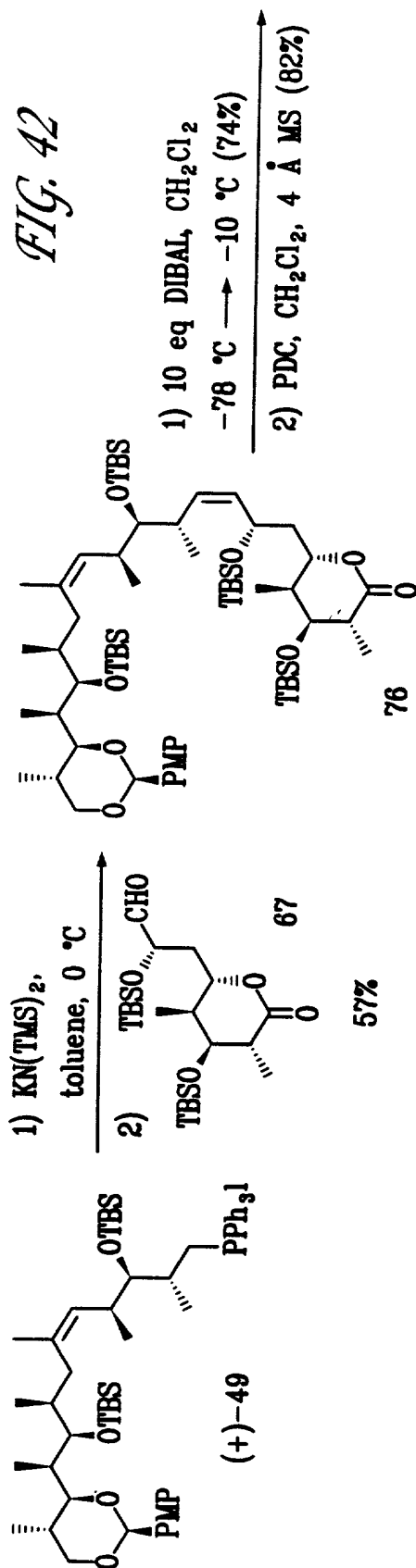


FIG. 42



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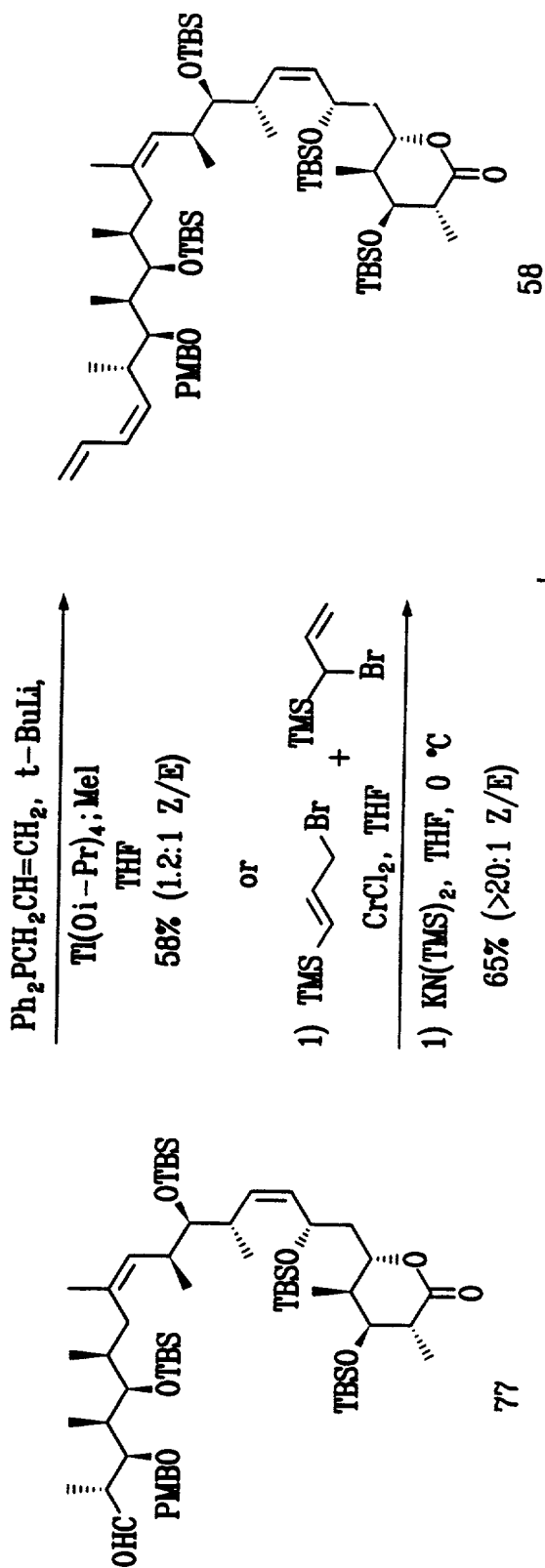
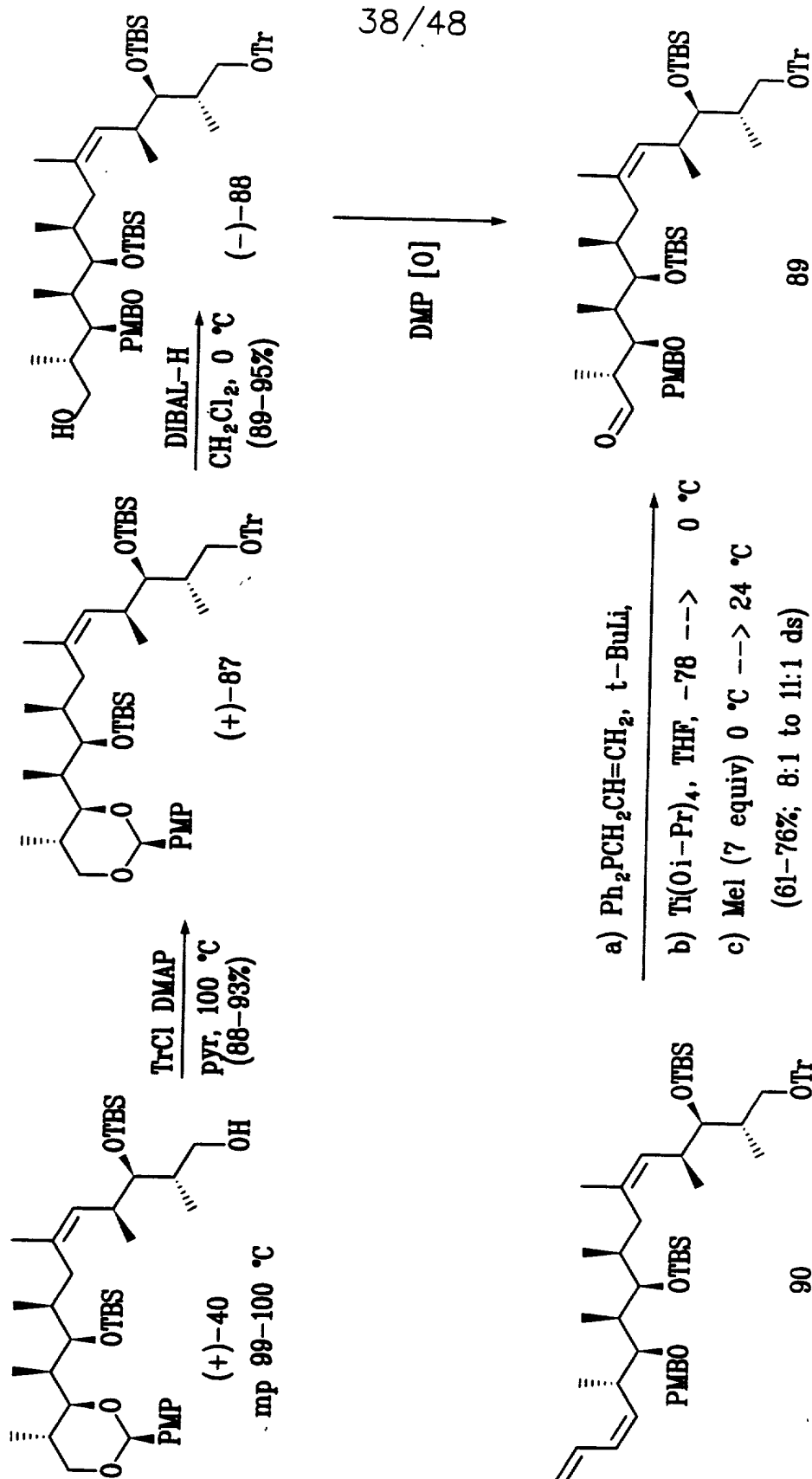
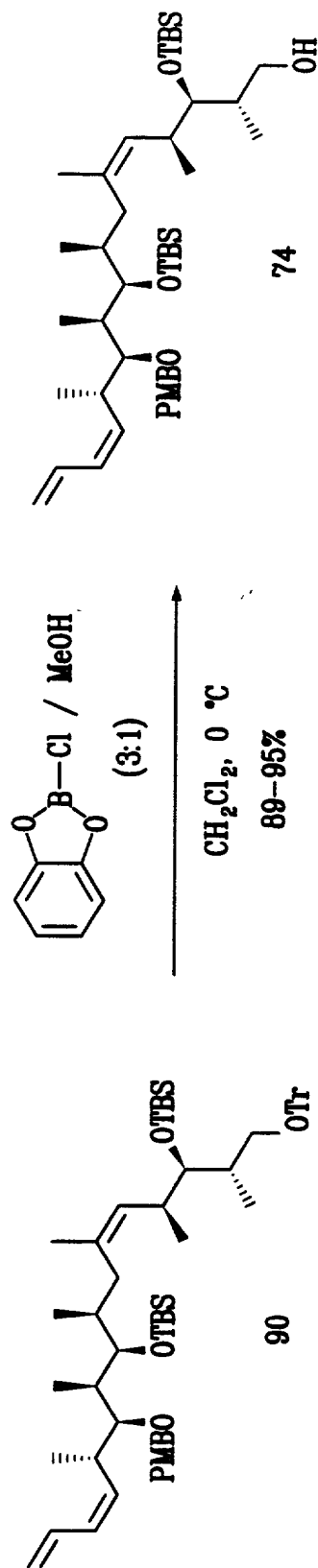


FIG. 43

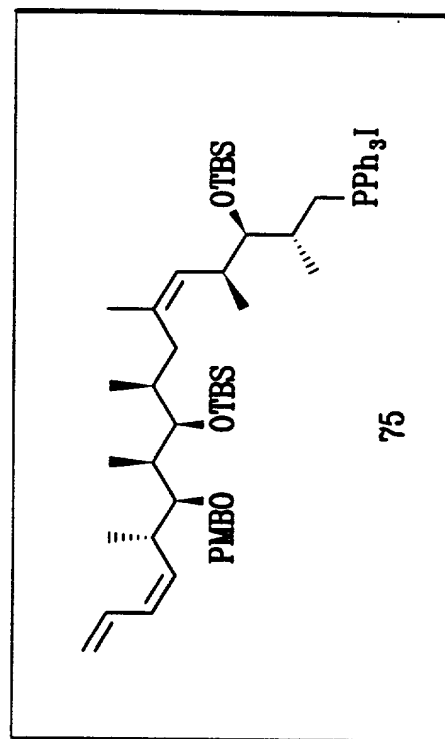


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FIG. 44



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- 1) PPh_3 , I_2 , Imid. ($\text{PhH}/\text{Et}_2\text{O}$)
- 2) PPh_3 , Hunig's base ($\text{PhH}/\text{Tol.}$)
12.8 Kbar (7-14 days)
75-82% (2 steps)

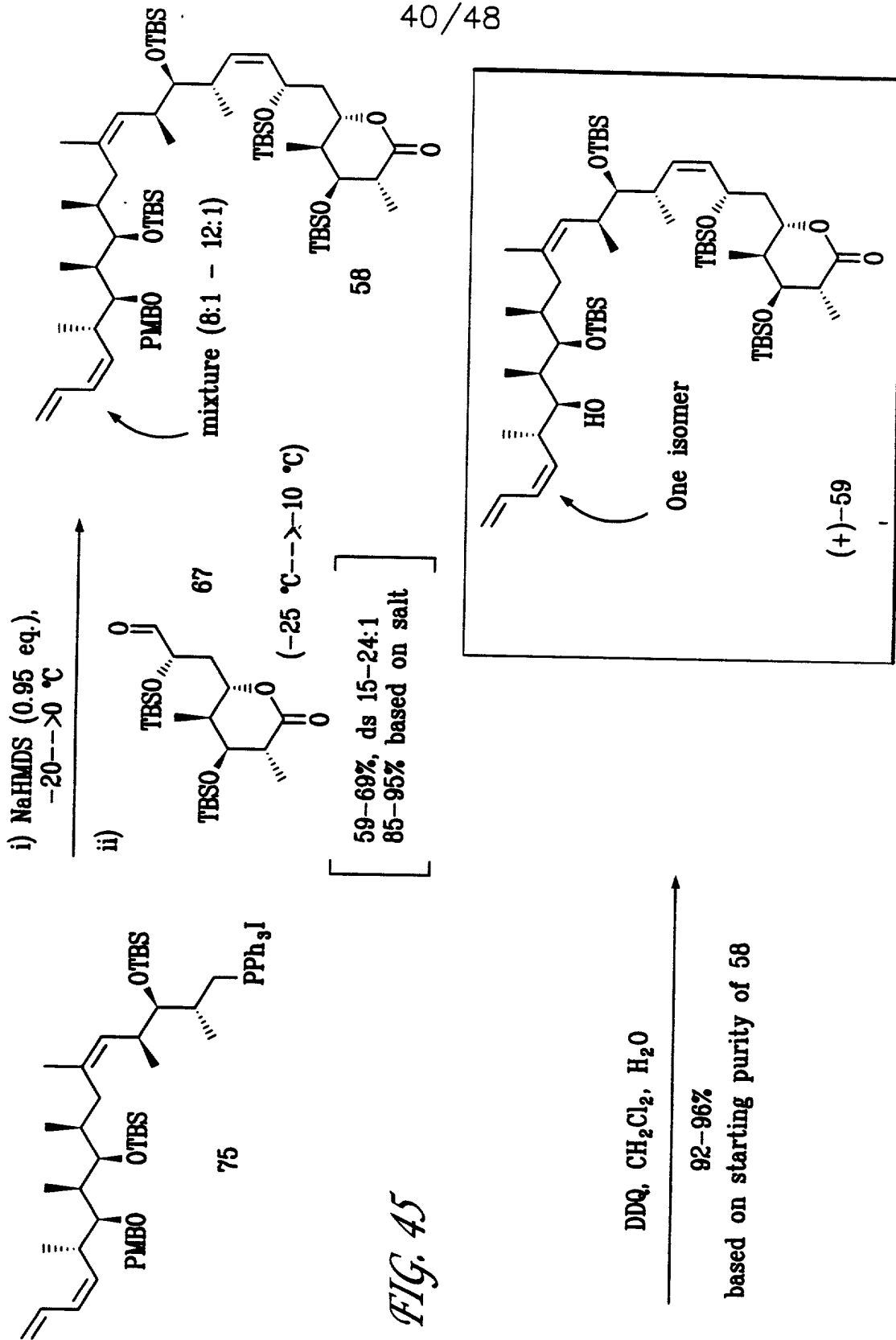


FIG. 45

FIG. 47

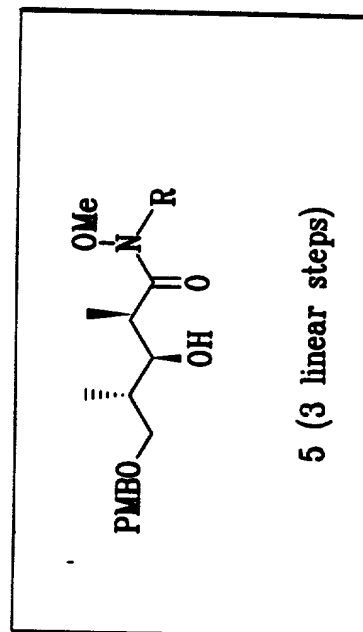
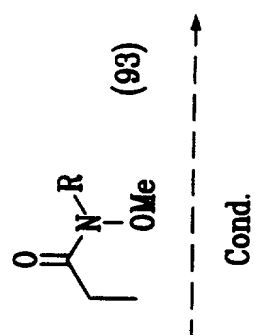
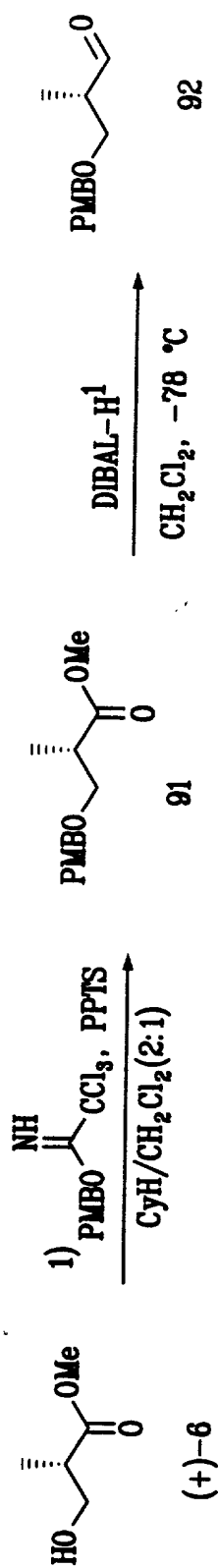


FIG. 48

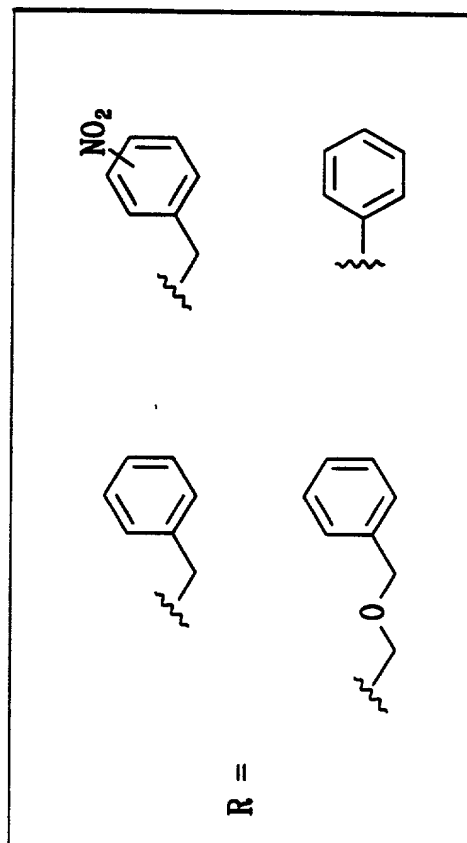
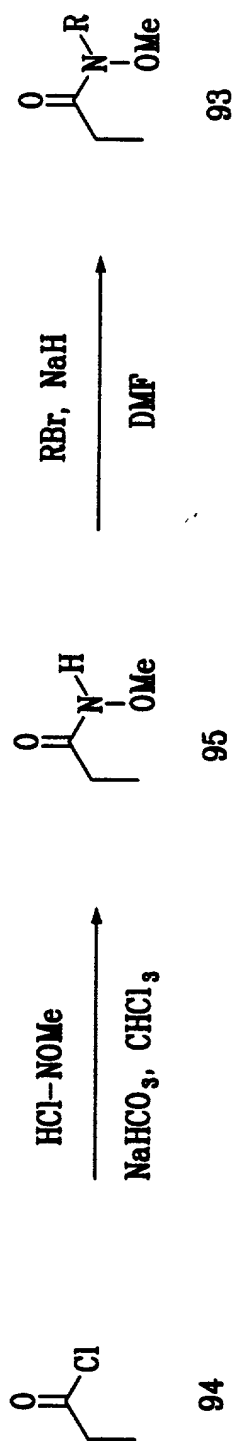


FIG. 49

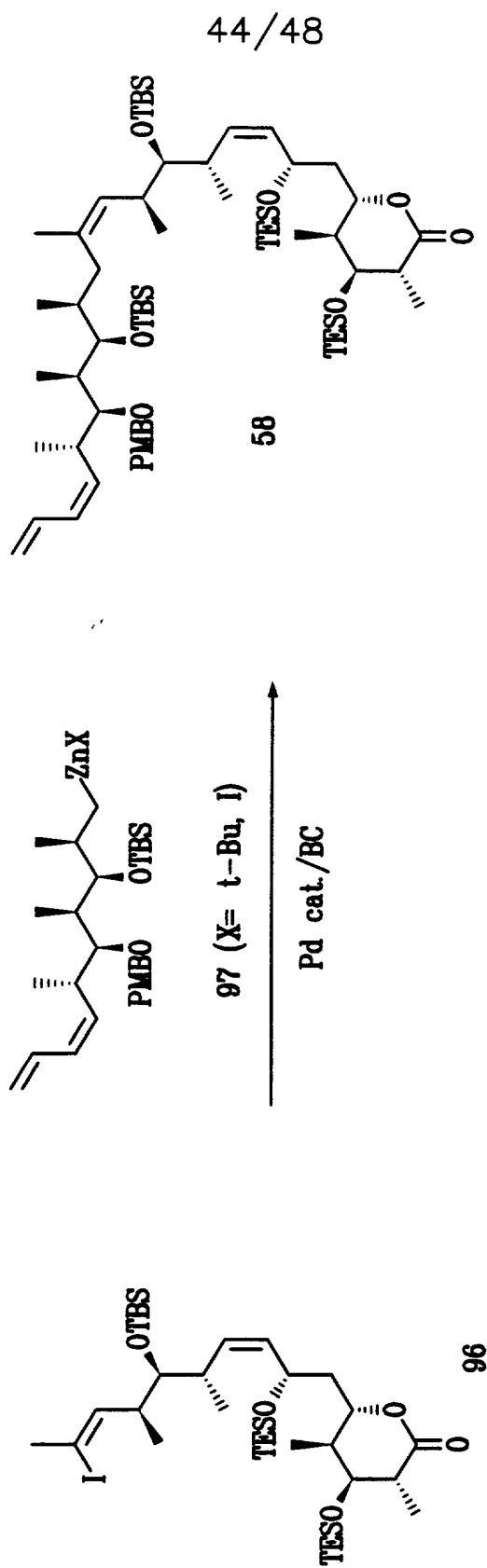
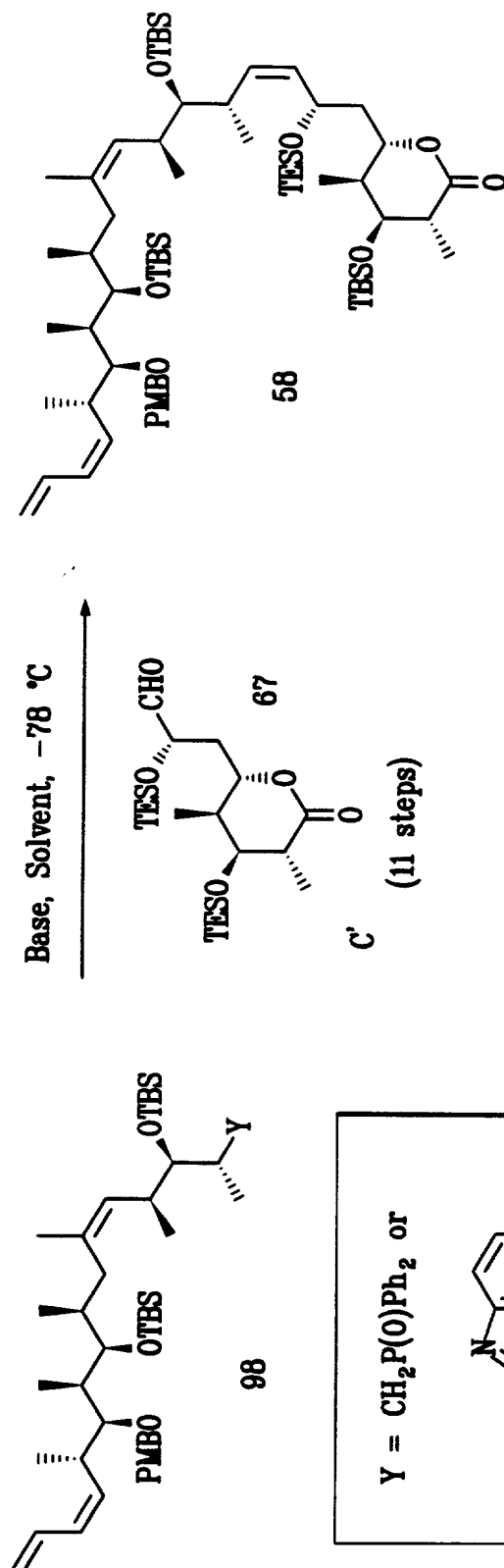
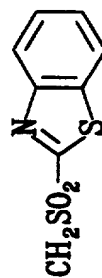


FIG. 50



$\text{Y} = \text{CH}_2\text{P}(\text{O})\text{Ph}_2$ or



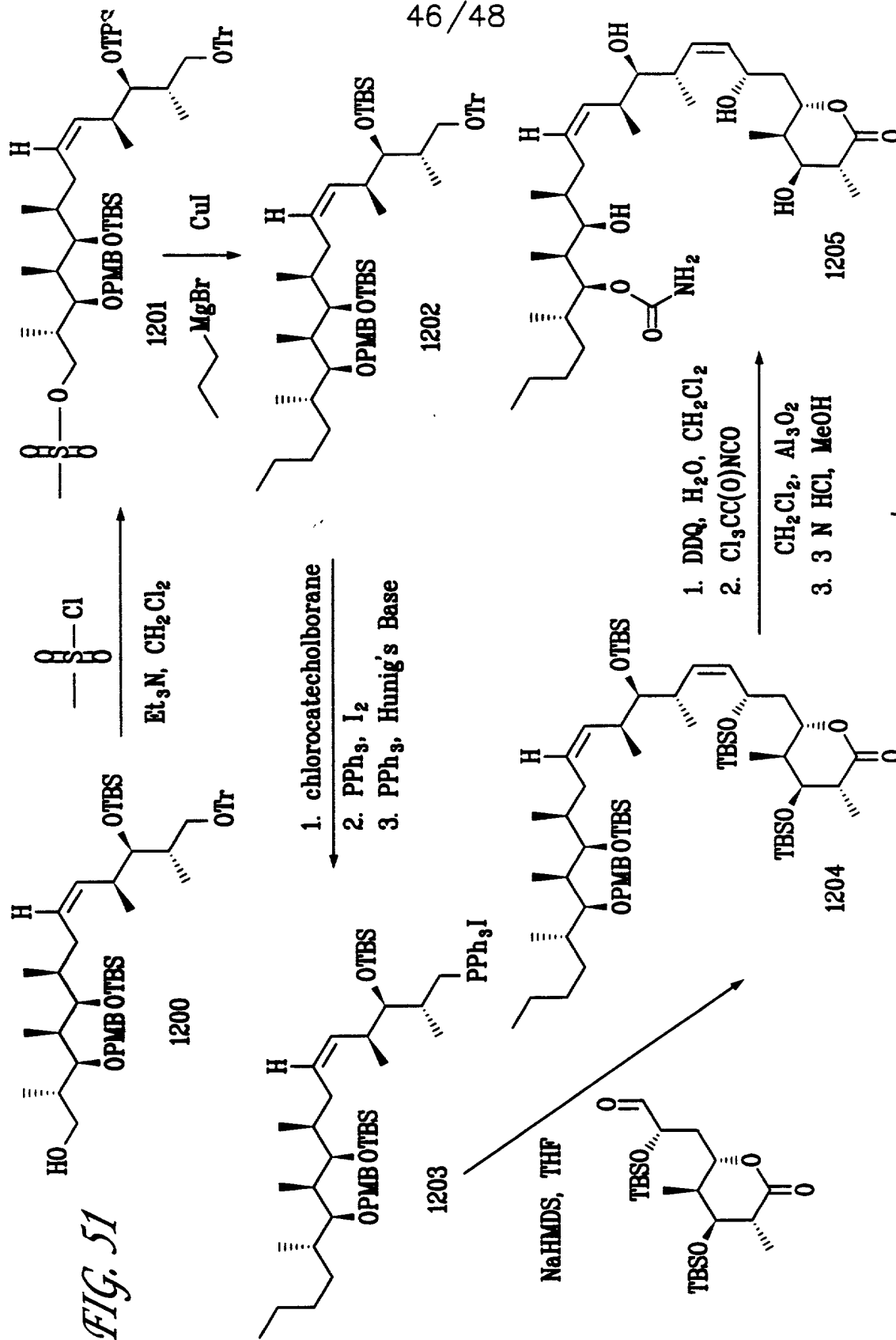
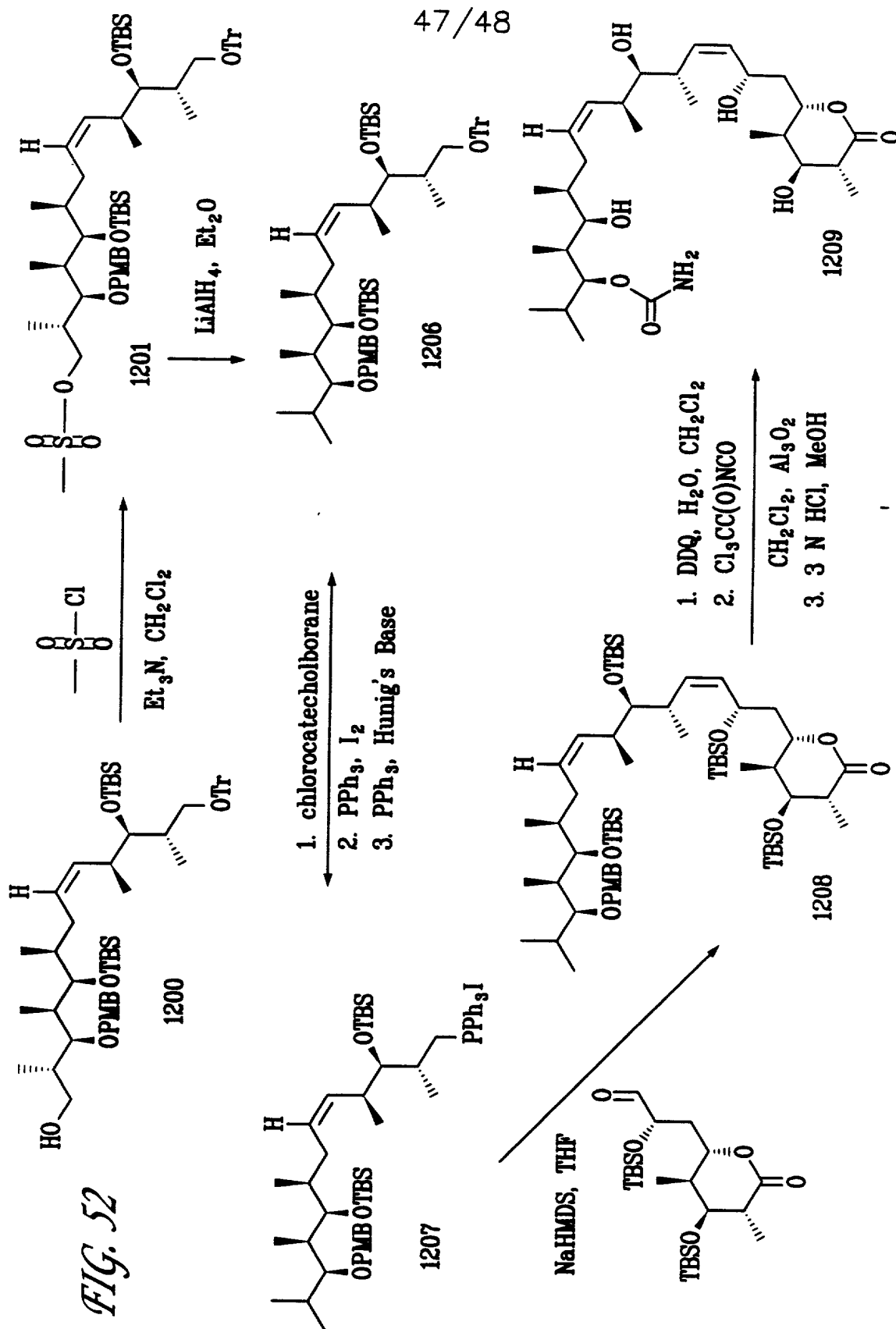


FIG. 52



75

NaHMDS, THF

1210

1. DDQ, H₂O, CH₂Cl₂
 2. Cl₃CC(O)NCO
 CH₂Cl₂, Al₃O₂

3 TBAF, THF

1211

